



Travel Narratives, the New Science, and Literary Discourse, 1569–1750

Judy A. Hayden

TRAVEL NARRATIVES, THE NEW SCIENCE,
AND LITERARY DISCOURSE, 1569–1750

*... the knowledge of Places is of absolute necessity to prevent those
Ridiculous mistakes Men must commonly make, who know nothing,
or very little of the World.*

—Edmund Bohun, *A Geographical Dictionary* (1688)

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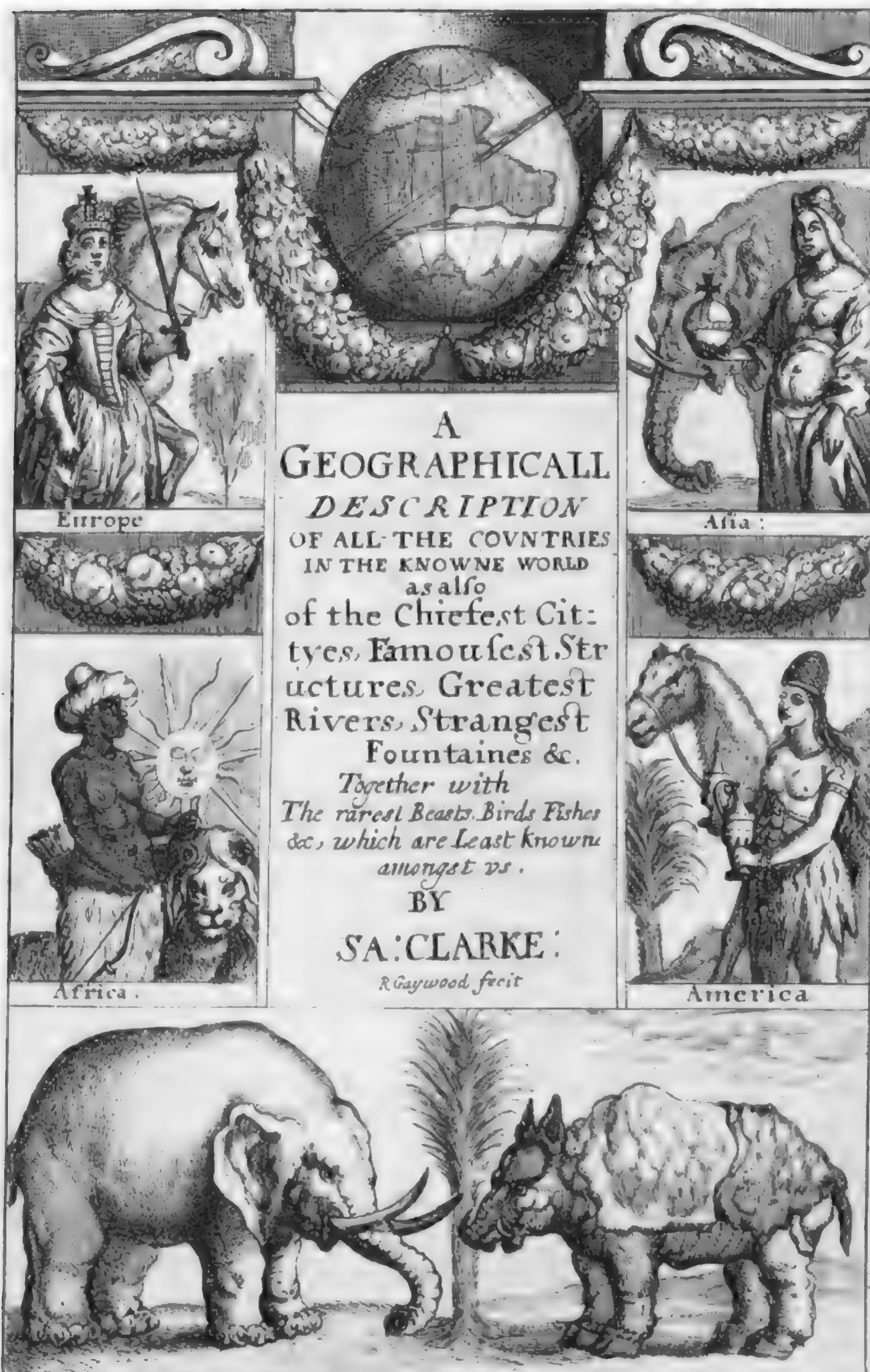
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Chapter 1

Intersections and Cross-Fertilization

Judy A. Hayden

Early modern scientific discovery, technical invention, and artistic creativity should be thought of as both “inter-connected and cross-fertilizing.”¹ There are surely numerous reasons for this technical and intellectual interconnection, but what perhaps facilitated this was that “there was no consistent principle for distinguishing among forms of prose literature.”² Jill Bradbury observes that “early modern humanists included forms as diverse as georgics, ethical treatises, drama, philosophical dialogues, and political tracts under the rubric of poetic genres.”³

The term “science” meant “certain knowledge” and referred largely to a wider body of knowledge rather than specific disciplines, so that what we think of today as chemistry, biology, ethics, history, and the fine arts, for example, however diverse these disciplines may be, would have been part and parcel of the sciences. Thus, in the sixteenth-century, poetry could still be used to “convey new discoveries in medicine and natural philosophy,” and Philip Sidney could write in the *Defence of Poesie* (1595) that “of all Sciences ... is our Poet the Monarch.”⁴ Elizabeth Spiller points out that early modern “science maintains strong affiliations with poetic fictions because ... its practice emerges out of a central understanding of

¹ In “Monuments and Microscopes: Scientific Thinking on a Grand Scale in the Early Royal Society,” Lisa Jardine points out the interconnectedness of science and art (as architectural aesthetics). See her essay in *Notes and Records of the Royal Society London* 55/2 (2001): pp. 290–91. On the idea of the interconnectedness of art and science, see also, for example, Carla Mazzio, “Shakespeare and Science, c.1600,” *South Central Review* 26/1–2 (Winter and Spring, 2009): pp. 1–23; and Henry S. Turner, *The English Renaissance Stage. Geometry, Poetics, and the Practical and Spatial Arts 1580–1630* (Oxford: Oxford University Press, 2006). In this essay, I am using Steven Shapin’s definition of science, which, he claims “tended to designate any body of properly constituted knowledge,” as well as his definitions for natural history, as the “sorts of things [that] existed in nature,” and natural philosophy as “the causal structure of the natural world.” See *The Scientific Revolution* (Chicago: University of Chicago Press, 1997), p. 5n3.

² Jill Marie Bradbury, “New Science and the ‘New Species of Writing’: Eighteenth-Century Prose Genres,” *Eighteenth-Century Life* 27/1 (Winter 2003): p. 29.

³ *Ibid.*,” p. 32.

⁴ Mary Baine Campbell, “Literature,” in Katharine Park and Lorraine Daston (ed.), *Early Modern Science*, vol. 3 of *The Cambridge History of Science* (Cambridge: Cambridge University Press, 2006), p. 757.

art as a basis for producing knowledge.”⁵ Both the practitioner of early modern science and the poet were perceived as “makers” of knowledge.

What may have contributed as well to this cross-fertilization between science, technology, and the arts was education and its institutions, where many writers and scientific practitioners of the day would have been similarly trained.⁶

The typical Latin grammar school curriculum of the period involved a thorough knowledge of the major Latin and Greek writers with special emphasis on Virgil Not only did they discuss the texts in detail, analyzing grammatical and rhetorical devices and following up geographical and mythological allusions, they were also expected to assimilate and imitate the style of the best models.⁷

I certainly do not mean to argue here that all students of the sixteenth and seventeenth centuries would have undertaken an identical curriculum, but rather that a classical training in Latin at least was typical, and at Cambridge and Oxford, students would have engaged in similar training in astronomy, geometry, perhaps Greek, and certainly, of course, rhetoric, which would have been particularly emphasized.⁸

While science in the seventeenth century may have referred to “knowledge,” the seven liberal arts were also called “the seven liberal sciences.”⁹ The relationship between science and the arts had so long been acknowledged that the author of the sixteenth-century text *An Acte Conyrrnyng Bakyrs, Bruers, Surgeens, and Scryveners* [1530] could refer to “the scyens of bakyng, bruyng, surgery, or wrytyng.”¹⁰ For the Elizabethan John Dee, who penned the “Mathematical Preface” to Henry Billingsley’s translation of Euclid’s *Elements* (1570), “the difference between *scientia* and *ars* is reduced to one of procedure, while the knowledge produced by both is shown to be qualitatively the same.”¹¹ Throughout the sixteenth century,

[i]f we examine the distinctive habits of reasoning that preceded modern experimental method and the mathematical world-view of the seventeenth

⁵ Elizabeth Spiller, *Science, Reading, and Renaissance Literature. The Art of Making Knowledge 1580–1670* (Cambridge: Cambridge University Press, 2004), pp. 2–3.

⁶ Angelica Duran, *The Age of Milton and the Scientific Revolution* (Pittsburgh: Duquesne University Press, 2007), p. 21.

⁷ Lois Potter, *Milton*, rev. edn (Harlow, Essex: Pearson, 1986), p. 7.

⁸ As Henry S. Turner observes, the university educational curriculum was beginning to change. See “Practical Knowledge and the Poetics of Geometry,” chapter 2 of Turner’s, *English Renaissance Stage*, pp. 43–81. Duran makes a valid and important point when she observes that in our own studies of the early modern arts and sciences, we tend to overlook the “educational heritage and didactic roles” of literature and science and instead conduct our own research independently of these, “implicitly fostering division rather than unity.” See *Age of Milton*, pp. 21–2.

⁹ Carla Mazzio, “Shakespeare and Science, c. 1600,” *South Central Review* 26.1/2 (Winter and Spring, 2009): p. 2.

¹⁰ *Ibid.*,” p. 3.

¹¹ Turner, *The English Renaissance Stage*, pp. 61–2.

century, we find ways of thinking that would help to define the “new science” in unexpected places: scattered throughout sixteenth-century poetic discourse; crowded into marginal annotations; mentioned casually in letters about the importance of moral philosophy; motivating simple manuals that sought to popularize geometry among new classes of readers.¹²

If science and the arts shared a close relationship in the sixteenth-century, they continued to do so in the seventeenth, so that it was impossible for literary and scientific discourses to maintain a “discrete separation.”¹³

With no clear line separating the arts and sciences (nor the cognitive from the technical), it is not surprising that multifarious forms of discourse “found a place in the larger domain of literature.”¹⁴ Frans de Bruyn, for example, points to Bacon’s use of the term *silva* in *Sylva Sylvarum; or a Natural History* (1627). Although the word “silva” in Latin refers to “woods” or “forest,” it came to acquire a metaphorical meaning of “collection.” Thus, while Francis Bacon employed the term to introduce his scientific works, his “compendium of miscellaneous experiments and observations in various branches of natural history,” Ben Jonson could entitle his collections of poetry, *The Forrest* (1616), *The Under-wood* (1640), and *Timber: or, Discoveries* (1640). Abraham Cowley entitled his collection *Sylva, or Divers Copies of Verses, made upon sundry occasions* (1636),¹⁵ and Dudley North named two collections of miscellaneous writings, *A Forest of Varieties* (1645) and *A Forest Promiscuous of Several Seasons Productions* (1659), while John Dryden edited and published a collection of poems entitled *Sylvae: or, The Second Part of Poetical Miscellanies* (1685).

The arts came to celebrate science through the numerous odes and encomiums on early figures of the New Science. Abraham Cowley composed an encomium to the physician William Harvey for the latter’s study of “coy nature,” and he also penned an ode on the Royal Society, which praised Society members as “great champions” of philosophy; later Sarah Fyge Egerton wrote a poem in praise of Robert Boyle and his “notion of nature.” At the same time, however, science recognized the importance of communicating ideas through the arts, as might be seen in works by early modern “scientists” such as Francis Bacon, for example, in his *New Atlantis*, and Johannes Kepler in *Somnium*; later the astronomer, physicist, and mathematician Edmond Halley wrote an ode to Isaac Newton, which was appended to the first edition of the *Principia* (1687).¹⁶

¹² Ibid., p. 12.

¹³ Claire Jowitt and Diane Watt, “Introduction,” in *The Arts of 17th-Century Science. Representations of the Natural World in European and North American Culture* (Aldershot, UK, and Burlington, VT: Ashgate, 2002), p. 5.

¹⁴ Frans De Bruyn, “The Classical *Silva* and the Generic Development of Scientific Writing in Seventeenth-Century England,” *New Literary History* 32 (2001): p. 348.

¹⁵ Ibid., pp. 354, 362–4.

¹⁶ Of course, not all references to science and/or the Royal Society were celebratory. John H. Cartwright and Brian Baker note that John Donne seems “almost gleeful” in his

While education may have helped to facilitate the link between science and the arts, so, too, did public communication, aided and reinforced through various intellectual societies and institutions. The earlier, medieval scientific community had guarded scientific knowledge and largely held that scientific knowledge should be closed to the majority of society, kept from those “unworthy” to receive it.¹⁷ Roger Bacon (c.1219–c.1294) had written in *Opus Majus* that, “[T]he secrets of the sciences are not written on the skins of goats and sheep so that they may be discovered by the multitude.”¹⁸ Bacon further asserted the need to secure “the secrets of natural philosophy from corruption and from the ignorance of the multitudes.”¹⁹ Part of this early reticence to proffer scientific knowledge to the general public was, of course, the concern about forbidden knowledge—delving into the secrets of God. “Knowledge is not only power,” Lochrie observes, it is also “divine revelation.”²⁰

Nevertheless, as William Eamon has pointed out, following the advent of the printing press, an awareness of the fame and profit that could be realized from the publication of “secrets” arose, and hence a number of various “books of secrets” were published.²¹ These books covered a variety of topics, including gardening, canning and preserving, herbal remedies and cures, surgery, navigation and magnetism, inks and dyeing and, of course, the torrid secrets of various crimes. The early occult tradition had long confirmed that “accessible knowledge was for the common herd, hidden knowledge for the wise and virtuous.”²² It is not surprising that on the title page of his first edition of *De subtilitate* (1550), Girolamo Cardano could describe wonders as “the aristocracy of natural phenomena,” recalling “the letter from Trithemius that introduced Agrippa’s *De occulta philosophia*:

poem “The Second Anniversary” (1612), when he “lists several medical and biological problems that were unsolved in his day.” See *Literature and Science. Social Impact and Interaction* (Santa Barbara: ABC-CLIO, 2005), p. 66. Samuel Butler (1612–1680) also satirizes science in his poem “The Elephant on the Moon,” as does Thomas Shadwell (c.1642–1692) in his play *The Virtuoso* (1676).

¹⁷ See William Eamon’s essay on this topic, “From the secrets of nature to public knowledge,” in David C. Lindberg and Robert S. Westman (ed.), *Reappraisals of the Scientific Revolution* (Cambridge: Cambridge University Press, 1990), pp. 333–65.

¹⁸ Roger Bacon, *Opus Majus* as quoted in William Eamon, “From the Secrets of Nature,” p. 336.

¹⁹ Karma Lochrie, *Covert Operations. The Medieval Uses of Secrecy* (Philadelphia: University of Pennsylvania Press, 1999), p. 99.

²⁰ *Ibid.*, p. 99.

²¹ William Eamon, “From the Secrets of Nature,” p. 340. Eamon points out the medieval fascination for arcane knowledge and thus the popularity of anything “secret,” but particularly *Kitāb Sirr al-Asrār* (*Book of the Secret of Secrets*), also known as *Secretum secretorum*, p. 335. For more on medieval “secrets,” see also Eamon’s *Science and the Secrets of Nature. Books of Secrets in Medieval and Early Modern Culture* (Princeton: Princeton University Press, 1994).

²² Eamon, “From the Secrets of Nature,” p. 348.

‘I warn you to keep this one precept, that you communicate vulgar things to the vulgar and arcane only to your highest and secret friends.’’’²³

The seventeenth-century intellectual community began to rethink this notion of secrecy, and one of those who worked toward openness in the exchange of knowledge was Francis Bacon, who insisted on collaborative learning and open communication. This is not to say that a concrete line was drawn between secret and open knowledge (and/or understanding), either with Bacon’s various treatises or with the establishment of the Royal Society since even after the Royal Society was formed, men were often reluctant to share their knowledge. For example, William Brouncker, when president of the Royal Society, refused to make William Petty’s manuscript on shipbuilding public because it was “too great an arcanum of state to be commonly perused.”²⁴ In his *Proposal for the Good of the Royal Society*, Robert Hooke also expressed concern that “others not qualified” might “share of the benefit” of secrets obtained by the Society.²⁵

There were a number of reasons in the seventeenth century for continued concern about secrecy. In their efforts to secure knowledge—and truth—the Royal Society set itself up as an “intellectual clearing house,” engaging in and encouraging correspondence between scientists and members of other intellectual societies.²⁶ This practice of “intellectual sharing,” however, was not without the occasional unpleasant backlash. In one incident, Christopher Wren was asked to supply his hypothesis of Saturn to the Society; although he did so with great reluctance, a copy of his submission was made and forwarded without Wren’s consent to Monsieur Frenicle in Paris.²⁷ Wren’s hypothesis, it turned out, was incorrect, and so his reluctance to comply with the Society’s wishes is understandable, for his intellectual reputation had been put on the line. While such correspondence may have been implemented to encourage intellectual discussion, it did not always bode well for the particular “scientist” who was sharing. Furthermore, when letters and hypotheses were publicly disseminated, responses to the ideas put forward in these correspondences could be callous—even brutal.²⁸

²³ Lorraine Daston and Katharine Park, *Wonders and the Order of Nature*, 1150–1750 (New York: Zone Press), p. 167.

²⁴ John Aubrey, *Brief Lives*, as quoted in Eamon, “From the Secrets of Nature,” p. 355.

²⁵ Michael Hunter, *Science and Society in Restoration England* (Cambridge: Cambridge University Press, 1981), p. 57.

²⁶ Marie Boss Hall, “The Royal Society’s Role in the diffusion of Information in the Seventeenth-Century,” *Notes and Records of the Royal Society of London* 29/2 (March 1975): p. 177. See also Steven J. Harris, “Networks of Travel, Correspondence, and Exchange,” in Katharine Park and Lorraine Daston (ed.), *Early Modern Science*, vol. 3 of *The Cambridge History of Science* (Cambridge: Cambridge University Press, 2006), pp. 341–62. Harris elucidates the wide circulation of scientific ideas through correspondence outside the Royal Society, including practitioners in Italy, Germany, France, and even China.

²⁷ Hall, “Royal Society’s Role,” p. 178.

²⁸ Ibid., p. 181.

Certainly economics was a further reason for secrets in the early scientific community. “Restraint on the free communication of technological secrets was bound to remain, as long as certain information was commercially valuable.”²⁹ Concern about theft and disputes about ownership were legitimate because “[t]here was … no intellectual property rights doctrine in seventeenth-century Europe, only so-called privileges,”³⁰ which could be worth a considerable amount of money since privileges “provided monopolies.” Privilege “granted not only the use or sale of a certain technology over a certain period, but also other benefits such as the authorization to set up a business in a certain place, the granting of honorific titles, pensions, cash awards, free housing” and so forth.³¹ One such intellectual property rights dispute occurred between Robert Hooke and Henry Oldenburg about the invention of a spring for the balance wheel of a pocket watch. Hooke claimed to have developed the idea for the mechanism and parlayed his invention to Oldenburg for publication in the *Transactions*; Hooke accused Oldenburg of divulging the “secret” to Huygens, who claimed the invention himself.³² The incident exploded in charge and counter-charge, undermining the friendship of these two men and causing considerable stir among the members of the Society.

While secrecy was certainly one way to protect one’s invention, the artisan also had the guild; however, as Stewart notes, with the rapid urbanization of London and the development of and innovation in scientific instrument-making, the guilds were unable to adapt and their influence seriously began to weaken.³³ Even so, the duties of the guild were less about invention than the maintenance of the quality of craftsmanship. “Patents were about the establishment or importation of new technologies Guilds were about managing existing local trades.”³⁴ By 1700, the guilds had lost any “real influence over the manufacturing and retail trade of the instrument makers,” and with the growth of experimental science and the ability of the consumer to purchase experimental equipment off the shelf, the power of the guilds began to erode.³⁵

²⁹ Jan V. Golinsky, “Chemistry in the Scientific Revolution: Problems of Language and Communication,” in David C. Lindberg and Robert S. Westman (ed.), *Reappraisals of the Scientific Revolution* (Cambridge: Cambridge University Press, 1990), p. 382.

³⁰ Mario Biagioli, “From Prints to Patents: Living on Instruments in Early Modern Europe,” *History of Science* 44 (2006): p. 140. Biagioli claims that prior to 1700, there was little patent activity in England, and between 1650 and 1700, only about seven patents were granted for instruments other than clocks. After 1700, the number dramatically increases, so that by 1800, 93 patents were issued for instrument. See “From Prints to Patents,” p. 145.

³¹ *Ibid.*, pp. 147–8.

³² Hall, “Royal Society’s Role,” p. 188.

³³ Larry Stewart, “Science, Instruments, and Guilds in Early-Modern Britain,” *Early Science and Medicine* 10.3 (2005): pp. 394–5. On the weakening of the guilds’ powers, see also Biagioli, “From Prints to Patents,” p. 146.

³⁴ Biagioli, “From Prints to Patents,” p. 149.

³⁵ Stewart, “Science, Instruments, and Guilds,” p. 403; Biagioli, “From Prints to Patents,” p. 398.

The concerns then about one's hypotheses and/or inventions were many: who might obtain access to these secrets and why; how one's reputation might be enhanced or damaged by the showing of one's secrets; who might gain from this knowledge and how much; and who might claim the invention or hypothesis as their own? In addition to these "new" questions, however, the age-old concern about the worthiness of those who might receive and read one's work still remained to some extent, so that before his death, Christian Huygens would record in *The Celestial Worlds Discover'd* (1698), his apprehension about disseminating his research:

I doubt not but I shall incur the Censures of learned Men for putting this Book into English, because, they'l say, it renders Philosophy cheap and vulgar, and which is worse, furnishes a sort of injudicious People with a smattering of Notions, which being not able to make a proper use of, they pervert to the Injury of Religion and Science.³⁶

Nevertheless, the secretive language of the medieval scientific community did give way to more open dissemination of knowledge, which could only benefit scientific reform. Bacon's call for clarity of language, a language devoid of vanity and excess, what he referred to as the "sweet falling of the clauses," also facilitated the dissemination of new knowledge.³⁷ In his *Advancement of Learning* (1605), for example, Bacon castigates those men who "hunt more after words, than matter," which he credits as the first "distemper" of learning: "[W]ordes are but the Images of matter, and except they haue life of reason and inuention: to fall in loue with them, is all one, as to fall in loue with a Picture."³⁸ He complains that learning has been traduced by vanities, which, he insists, should be cloathed with "sensible and plausible elocution."³⁹ That Bacon intended the dissemination of new knowledge can be demonstrated in his *Novum Organum*, where he proposed a course for the discovery of sciences which "leaves but little to the acuteness and strength of the wits, but places all wits and understandings nearly on a level":⁴⁰

Men associate through talk; and words are chosen to suit the understanding of the common people. And thus a poor and unskilful code of words incredibly obstructs the understanding. The definitions and explanations with which learned men have been accustomed to protect and in some way liberate themselves, do not restore

³⁶ Christian Huygens, *The Celestial Worlds Discover'd: Or, Conjectures concerning the Inhabitants, Plants and Productions of the Worlds in the Planets* (1698), trans. Timothy Childe, facsimile report of 1st English edn (London, Frank Cass, 1968). Huygens's text was published posthumously.

³⁷ Francis Bacon, *The Advancement of Learning*, ed. Michael Kiernan, vol. IV of *The Oxford Francis Bacon*, gen. ed. Graham Rees and Lisa Jardine (Oxford: Clarendon, 2000), p. 22.

³⁸ *Ibid.*, p. 23.

³⁹ *Ibid.*, p. 23.

⁴⁰ Francis Bacon, *The New Organon (Novum Organum)*, ed. Lisa Jardine and Michael Silverthorne (Cambridge: Cambridge University Press, 2000), pp. 62–3.

the situation at all. Plainly words do violence to the understanding, and confuse everything; and betray men into countless empty disputes and fictions.⁴¹

In 1660, the Royal Society took up Bacon's call with an appeal of their own for a "return to the primitive purity, and shortness, when men delivered so many *things*, almost in equal number of words."⁴² In his *Certain Physiological Essays and Other Tracts* (1669), Robert Boyle argues that since philosophical discourse is intended "only to inform Readers, not to delight or perswade them, Perspecuity ought to be esteem'd at least one of the best Qualifications of style."⁴³ Ornaments in writing, Boyle claims, make nature abstruse, like painting on the "Eye-glasses of a Telescope"; although the writer's style should not be florid, he "should take care that it disgust not his Reader by its Flatness," for although it may be foolish to paint the eyeglasses of a telescope, "to gild or otherwise embellish the tubes" may make the material more acceptable to readers.⁴⁴ In essence, then, early modern voices of the New Science insisted that "language ... should be the handmaid of observation and not itself an object of admiration, analysis, or dispute."⁴⁵

Language, science, observation, and literary discourse merge in the early modern travel narrative [Figure 1.1]. Michael McKeon has posited that "the seventeenth century marks a critical stage of transition" for the travel narrative, as it moved from a pilgrimage narrative with its attention on salvation to a secular narrative in "alliance with the new philosophy."⁴⁶ The unequivocal link between science and travel was one Bacon pointed out in his *Advancement of Learning*. The recent "Proficience in Nauigation, and discoueries," he believed, would "plant also an expectation of the furder proficience, and augmentation of all Scyences, because it may seeme they are ordained by God to be Coevalls, that is, to mee in one Age."⁴⁷ In *Parasceve* he asserted that knowledge must be "sought out and gathered in (as if by agents and merchants) from all sides."⁴⁸

The Royal Society took up Bacon's call for agents to search out and gather in knowledge, sending out a number of enquiries to establish whether previous travel narratives, such as those printed by Purchas, were truthful. These enquiries, published in the *Philosophical Transactions*, are entitled "Inquiries for Suratte, and other parts of the East-Indies" (1666), "Enquiries for Greenland" (1666), and

⁴¹ *Ibid.*, pp. 41–2.

⁴² De Bruyn, "Classical Silva," p. 365; Thomas Sprat, *The History of the Royal-Society of London, For the Improving of Natural Knowledge* (1667), ed. Jackson I. Cope and Harold Whitmore Jones (St. Louis: Washington University Press, 1966), p. 113.

⁴³ Robert Boyle, *Certain Physiological Essays and Other Tracts* (London, 1669), p. 12.

⁴⁴ *Ibid.*, pp. 12–13.

⁴⁵ De Bruyn, "Classical Silva," p. 360.

⁴⁶ McKeon, *Origin of the English Novel 1600–1740* (Baltimore: Johns Hopkins University Press, 1987), p. 101.

⁴⁷ Bacon, *The Advancement of Learning*, p. 71

⁴⁸ Francis Bacon, *Parasceve*, in *The Oxford Francis Bacon*, vol. XI, ed. Graham Rees (Oxford: Oxford University Press, 2004), p. 451 [See Fig. 1.1].

*This figure has intentionally been removed for copyright reasons.
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Fig. 1.1 Frontispiece to Francis Bacon's *Novum Organum* (1620). Reproduced by permission of the Folger Shakespeare Library. No. STC 1162.

“Enquiries and Discoveries for the Ant-Iles, or Caribbe-Island” (1668), and so forth. To develop these enquiries, the Society required a format. Robert Hooke argued that instructions were needed for merchants, seamen and travelers (who would in effect function as the “gatherers”) on what to observe and how to record what was “pertinent and considerable” to the Society. In response, Boyle produced a “General Heads for a Natural History of a Countrey, Great or Small,” that diverse philosophers might compose “a good Natural History, to superstruct, in time, a *Solid and Useful Philosophy* upon.”⁴⁹ These instructions and the narratives which respond to them “provide a remarkable instance of how critical and theoretical discourse develops alongside, and in relation to, the development literary discourse,”⁵⁰ as the essays in this collection demonstrate.

In the gathering of knowledge, however, observation and the establishment of “fact” became a necessary facet, but as Shapin points out, the difficulty with establishing fact was that the credibility of reports on distant lands was difficult to assure.⁵¹ Early travel narratives had been viewed with suspicion. Who could be trusted as reliable witnesses? Who was suspect?⁵² Credibility as a witness became linked to one’s social status, so that “the distribution of credibility follows the contours of English society In such a setting one simply knew what sorts of people were credible, just as one simply knew whose reports were suspect.”⁵³ Even so, concerns about the trustworthiness of one’s report were such that naturalists insisted in their observations that they were “relying on firsthand observation and credible reports.”⁵⁴ In his *History of the Royal Society* (1667), Thomas Sprat included

⁴⁹ Robert Boyle, “General Heads for a Natural History of a Countrey, Great or Small, imparted likewise by Mr. Boyle,” *Philosophical Transactions* 1/11 (1665–1666): p. 186.

⁵⁰ McKeon, *Origin of the English Novel*, p. 101.

⁵¹ Steven Shapin and Simon Schaffer, *Leviathan and the Air-pump. Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985), p. 39.

⁵² One of the most extensive and helpful of recent studies on the witness and credibility is Shapin’s *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: University of Chicago Press, 1994). See also Palmira Fontes da Costa, “The Making of Extraordinary Facts: Authentication of Singularities of Nature at the Royal Society of London in the First Half of the Eighteenth Century,” *Studies in History and Philosophy of Science Part A* 33/2 (Jun 2002): pp. 265–88; R.W. Serjeantson, “Testimony and Proof in Early-Modern England,” *Studies in History and Philosophy of Science* 30/2 (1999): pp. 195–236; Charles W.J. Withers, “Reporting, Mapping, Trusting: Making Geographical Knowledge in the Late Seventeenth Century,” *Isis* 90/3 (Sept. 1999): pp. 497–521; Mario Biagioli, “Etiquette, Interdependence, and Sociability in Seventeenth-Century Science,” *Critical Inquiry* 22/2 (Winter 1996): pp. 193–238; Barbara Shapiro, “The Concept of ‘Fact’: Legal Origins and Cultural Diffusion,” *Albion* 26/2 (Summer 1994): pp. 227–52; and Peter Dear, “Totius in Verba: Rhetoric and Authority in the Early Royal Society,” *Isis* 76/2 (June 1985): *passim*.

⁵³ Steven Shapin, “The House of Experiment in Seventeenth-Century England,” *Isis* 79/3 (Sept. 1988): p. 376.

⁵⁴ Barbara Shapiro, *Probability and Certainty in Seventeenth-Century England. A Study of the Relationships between Natural Science, Religion, History, Law, and Literature*

a document entitled “A Relation of the Pico Teneriffe,” which is subtitled, “Received from some considerable Merchants and Men worthy of Credit, who went to the top of it.”⁵⁵ The credibility of the report of the island is established by “a Judicious and Inquisitive Man, who liv’d twenty years in it as a Physician and Merchant.”⁵⁶

As fact, witness, and credibility were essential concerns for the travel narrative, so too did they become an integral part of the wider literary culture. “Literary forms do not come into existence *ex nihilo*, but mirror … shifting social practices and relations of power and prestige,” so that we might view early “novelists” not as inventing a new genre, in fact, but rather as creating something new by refashioning and recombining existing genres.⁵⁷ In this regard, Aphra Behn opens *Oroonoko: Or, The Royal Slave* (1688) with the following assertion:

I do not pretend, in giving you the History of this *Royal Slave*, to entertain my Reader with the Adventures of a feign’d *Hero*, whose Life and Fortunes Fancy may manage at the Poets Pleasure I was my self an Eye-Witness to a great part, of what you will find here set down; and what I cou’d not be Witness of, I receiv’d from the Mouth of the chief Actor in this History, the *Hero* himself.⁵⁸

Behn’s narrative is set in the context of travel, trade, and exploitation of indigenous peoples. On the long Atlantic voyage, the speaker of the story, purportedly Behn herself, suffers the loss of her father, who, she claims, was to be appointed Lieutenant-General of Surinam and a number of other islands. She witnesses the incidents she describes because she must remain in the colony until her family can obtain passage for the return to England.

Henry Neville’s *The Isle of the Pines, Or a Late Discovery of a Fourth Island in Terra Australis, Incognita* (1667), a short fictional travel narrative about a small group of English persons who become castaways on an island, is subtitled, *Being a true Relation of certain English persons, who in the dayes of Queen Elizabeth, making a Voyage to the East India, were cast away, and wracked upon the Island near to the Coast of Terra Australis, Incognita, and all drowned, except one man and four women ... The whole Relation follows, written and left by the man himself a little before his death, and declared to the Dutch by his Grandchild.*⁵⁹ That the

(Princeton: Princeton University Press, 1983), p. 142. Shapiro notes the similarities experienced by both the seventeenth-century historian and the naturalist in establishing credible sources. See also her comments on testimony on pp. 4–6 and 18–22.

⁵⁵ Sprat, *History of the Royal-Society of London. For the Improving of Natural Knowledge* (London, 1667), pp. 200–213.

⁵⁶ *Ibid.*, p. 205.

⁵⁷ De Bruyn, “Classical Silva,” p. 349.

⁵⁸ Aphra Behn, *Oroonoko: Or, The Royal Slave*, in Janet Todd (ed.), *The Works of Aphra Behn*, 7 vols (Columbus: Ohio State University Press, 1995), vol. 3, p. 57. Behn’s *Oroonoko* and her credibility as witness is the topic of Chapter 6 of the present collection.

⁵⁹ Henry Neville, *The Isle of Pines, Or a Late Discovery of a fourth Island in Terra Australis, Incognita* (London, 1668).

events noted within this story are “fact” is established by the narrative itself, which was purportedly recorded firsthand by the “Adam” of the tiny paradise. Near the end of his life, this “Adam” placed the record of the colony in the hands of his eldest son, “commanding him to keep it, and if any strangers should come hither by chance, to let them see it, and take a Copy of it if they would” (8–9). In like manner, Daniel Defoe begins his fictional travel narrative and cast away story, *Robinson Crusoe*, with an appeal to fact, noting, “The editor believes the thing to be a just history of fact; neither is there any appearance of fiction in it.”⁶⁰

If the establishment of “fact” seems necessary in these early literary travel narratives, so it also becomes inherent in other literary modes. For example, in one of her first pieces of fiction, *The Fair Jilt* (1688), Aphra Behn asserts:

I do not pretend to entertain you with a feign'd Story, or any thing piec'd together with *Romantic Accidents*; but every Circumstance, to a Tittle, is Truth. To a great part of the Main, I my self was an Eye-witness; and what I did not see, I was confirm'd of by Actors in the Intrigue, holy Men, of the Order of St. *Francis*.⁶¹

The facts of *The Fair Jilt* have been confirmed by men who are reputable witnesses—churchmen.⁶² In *Roxana* (1724), Defoe includes in “The Preface” the following claim: “*This Story differs from most of the Modern Performances of this Kind ... Namely, That the Foundation of This is laid in Truth of Fact; and so the Work is not a Story, but a History.*”⁶³

Geography, too, became part of the scientific and literary culture and was, in fact, instrumental in providing a nucleus around which exploration and nation-building might develop.⁶⁴ Robert Sibbald argued in *Nuncius Scoto-Brittanicus* (1683) that “Geography is amongst those noble Sciences cultivated by men of excellent ability.”⁶⁵ Whether expressed as local customs and practices, in astrological studies, in mapmaking, navigation, surveying, and/or measurement, geographical knowledge “became an important element in the emergence of empirical systematic

⁶⁰ Daniel Defoe, *Robinson Crusoe* (1719), ed. Angus Ross (New York: Penguin, 1965), p. 25.

⁶¹ Aphra Behn, *The Fair Jilt: or, The History of Prince Tarquin and Miranda in The Works of Aphra Behn*, ed. Janet Todd, 7 vols (Columbus: Ohio State University Press, 1995), vol. 3, p. 9.

⁶² I should also note here, however, that principal event on which Behn’s story is based, the “execution” of Prince Tarquin, was reported in No. 57 of the *London Gazette*, dated May 28–31, 1666, and No. 58, dated 31 May–4 June 1666.

⁶³ Daniel Defoe, *Roxana. The Fortunate Mistress*, ed. John Mullan (Oxford: Oxford University Press, 1996), p. 2.

⁶⁴ Lesley B. Cormack, “‘Good Fences Make good Neighbors’: Geography as Self-Definition in Early Modern England,” *Isis* 82/4 (Dec. 1991), p. 640. See also Withers, “Reporting, Mapping, Trusting,” pp. 500–501.

⁶⁵ Robert Sibbald, *Nuncius Scoto-Brittanicus* (1683) as quoted in Withers, “Reporting, Mapping, Trusting,” p. 497.

philosophy after about 1660.”⁶⁶ A number of the new geographical works printed after 1660 enjoyed immense popularity; texts such as Pierre Duval’s *A Geographical Dictionary* (1662), George Meriton’s *Geographical Description of the World* (1671), Edmund Bohun’s *A Geographical Dictionary* (1688), and Laurence Echard’s geographical index, *The Gazatteer’s: or, Newsman’s Interpreter* (1692), were reprinted numerous times and underwent various editions (see Figure 1.2).

Earlier geographies and cosmographies also (which not infrequently incorporated fictitious elements) continued to be reprinted, such as George Abbot’s *Briefe Description of the Whole World* (1599), Peter Heylyn’s chorographical and historical *Microcosmos* (1621) revised and expanded as *Cosmographie* (1652), and Bernard Varenius’s Latin *Cosmography and Geography* (1650), translated into English in 1680. “Geography in early modern England was also about the fashioning of the idea of British Empire and about English national identity,” whether the geography was mathematical, descriptive, or chorographical.⁶⁷

Geographies as well as chorographies (the local and regional surveys) were central to nation-building, giving political significance to local families and regional features. Sibbald found it an “unpardonable crime to be ignorant of the counties and towns of one’s native land.”⁶⁸ Chorography was popular, not only because it “emphasized the surveying of estates close to home, the compiling of local families, and the description of local attractions and commodities,” but also because its format implicitly reminded readers of the descriptive travel narrative which exemplifies the otherness and superiority of the English, simultaneously allowing for the “political and economic aggrandizement” of local places and/or people.⁶⁹ While geographies and mapping gave rise to further exploration as well as nationalism, so, too, did curiosity link science with travel, heroism, and colonization. While Daniel Carey has noted the “fluid exchange” between travel, narrative, and natural history, Barbara Benedict has observed the way in which the explorer could be viewed as conqueror, opening new territories, which led to colonization.⁷⁰

We cannot fail to note here, however, that even though scientific “curiosity” may have been celebrated in the travel narrative, as this collection demonstrates, closer to home such curiosity remained for many a decided concern.⁷¹

⁶⁶ Withers, “Reporting, Mapping, Trusting,” p. 499.

⁶⁷ Ibid., pp. 500–501.

⁶⁸ Sibbald, *Nuncius Scoto-Brittanicus* (1683) as quoted in Withers, “Reporting, Mapping, Trusting,” p. 497.

⁶⁹ Cormack, “Good Fences Make Good Neighbors,” pp. 655–6.

⁷⁰ Daniel Carey, “Compiling Nature’s History: Travellers and Travel Narratives in the Early Royal Society,” *Annals of Science* 54 (1997): p. 269, and Barbara Benedict, *Curiosity. A Cultural History of Early Modern Inquiry* (Chicago: University of Chicago Press, 2001), p. 29.

⁷¹ Peter Harrison, “Curiosity, Forbidden Knowledge, and the Reformation of Natural Philosophy in Early Modern England,” *Isis* 92/2 (June 2001): p. 266. See also P. Fontes Da Costa, “The Culture of Curiosity at the Royal Society in the First Half of the Eighteenth Century,” *Notes and Records of the Royal Society of London* 56/2 (May 2002): pp. 147–66;

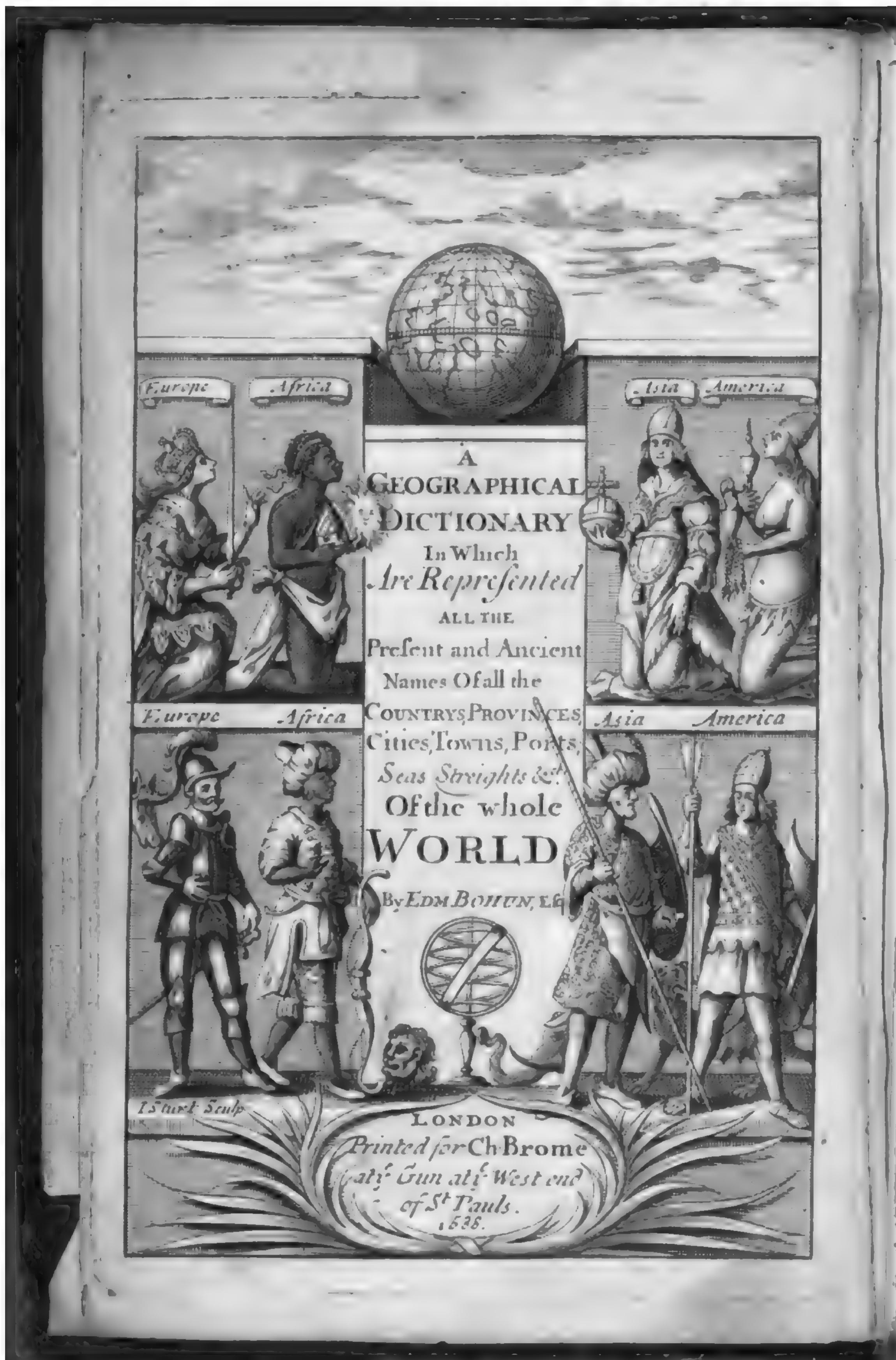


Fig. 1.2

Frontispiece to Edmund Bohun's *Geographical Dictionary* (1688). This item is reproduced by permission of The Huntington Library, San Marino, California, RB 330360.

While there were those who celebrated the New Science, incorporating scientific discoveries, discussions, and ideas in their literary narratives, there were others who felt that scientific curiosity may well transgress the limits God imposed on mankind. Although Francis Bacon had attempted to show that the end of curiosity and knowledge was the glorification of God,⁷² there remained some anxiety nevertheless that worldly curiosity was associated with, among other traits, vanity, pride, and disobedience. For example, when Adam in Milton's *Paradise Lost* expresses curiosity about the motions of the heavenly bodies, Raphael replies:

... the great architect
 Did wisely to conceal and not divulge
 His secrets to be scanned by them who ought
 Rather admire; or, if they list to try
 Conjecture, he his fabric of the heavens
 Hath left to their dispute, perhaps to move
 His laughter at their quaint opinions wide
 ...
 Think only what concerns thee and thy being;
 Dream not of other worlds, what creatures there
 Live, in what state, condition or degree,
 Contented that thus far hath been revealed
 Not of earth only but of highest Heaven. (8.2.72–178).⁷³

Bacon's ideas for the reform of philosophy also included religious reform, as he desired to return to man the dominion over the natural world lost by Adam and thus to assure that science did not exist simply "for the pleasure and illumination of a few minds," but rather for the "advancement of the commonwealth in general."⁷⁴ Nevertheless, the relationship between religion and science was indeed a complicated one, so that during the later sixteenth and seventeenth centuries, natural historians and philosophers attempted to put forward rationales to demonstrate that the improvement of knowledge led not to man's downfall, but to the glorification of God. Huygens's invective in *Celestial Words* is directed toward those who "fly out into religious exclamations" when conjectures about the heavens are offered; they "take too much upon themselves when they pretend

Marjorie Swann, *Curiosities and Texts. The Culture of Collecting in Early Modern England* (University of Pennsylvania Press, 2001); and Benedict, *Curiosity*, *passim*.

⁷² Francis Bacon, *The Advancement of Learning*, p. 294. As Benedict points out, although Bacon advocated an extensive and intensive program of gaining knowledge, he also acknowledged that this learning was done to honor God's supremacy. See Benedict, *Curiosity*, p. 19.

⁷³ John Milton, *Paradise Lost*, ed. David Scott Kastan (Indianapolis and Cambridge: Hackett Publishing, 2005).

⁷⁴ Eamon, "From the secrets of nature," p. 350.

to appoint how far and no farther Men shall go in their Searches, and to set bounds to other Mens Industry; just as if they had been of the Privy Council of Heaven.”⁷⁵

Even so, “the search for a comprehensive account of nature, projected by many as the goal of the ‘New Science’” continued, and the contribution of travelers exploring both regional and exotic destinations became imperative.⁷⁶ These travelers often brought home such curiosities as the rhinoceros and the anteater, unfamiliar birds, and little-known flowers, fruits, insects, and so forth. In his *Gesta Grayorum* (1594), Francis Bacon had sketched the curiosity cabinet or museum, the “goodly huge cabinet” in which one might keep and sort “whatsoever Nature has wrought in things.”⁷⁷ Although the artifact had been given new power in the sixteenth century (since by its very existence an artifact offered “fact”),⁷⁸ the curiosity cabinet was, nevertheless, privately owned largely rather than public. The breadth of the collection, as well as the extent of the rarity of the artifacts, was meant to relate to one’s social status, although not necessarily to one’s social rank. John Dee, for example, enjoyed wide social status as a scholar, mathematician, astrologer, and even “consultant” to Queen Elizabeth, and although he amassed a large library and a fascinating curiosity cabinet, he was not of the aristocracy—nor were the elder or younger John Tradescants, who were, in fact, besides collectors and travelers, gardeners for the monarch.

If curiosity and the desire “to know” inspired travel, so too did travel inspire curiosity, particularly owing to the artifacts brought home by previous explorers. Not only did curiosities encourage a desire for further knowledge, but they also stimulated public interest in travel accounts, geographies, maps and atlases, and botanies, all of which facilitated in turn a renewed desire for additional artifacts and knowledge.⁷⁹ In a historical period which had begun to realize an emphasis on nation, when exploration was laying the foundation for empire, science and literary discourse remained intrinsically linked. What the essays in this collection demonstrate is the manner in which new worlds, New Science, empire, nation, charting and mapping, and collecting are drawn together and conjoined, fundamentally and historically. The essays here make evident the early modern connectedness and intersection of literature and science, a multifarious cross-fertilization facilitated through the travel narrative.

Because the travel narrative provides a vehicle by which literature and science can intersect, Part 1 of this collection focuses on travel and the development

⁷⁵ Huygens, *Celestial Worlds*, pp. 7–8.

⁷⁶ Carey, “Compiling Nature’s History,” p. 270.

⁷⁷ Francis Bacon, *Gesta Grayorum* (1594) as quoted in *The Origins of Museums: The Cabinet of Curiosities in Sixteenth and Seventeenth-Century Europe*, ed. Oliver Impy and Arthur MacGregor (Oxford: Clarendon, 1987), p. 1.

⁷⁸ William B. Ashworth, Jr., “Natural History and the Emblematic World View,” in David C. Lindberg and Robert S. Westman (ed.), *Reappraisals of the Scientific Revolution* (Cambridge: Cambridge University Press, 1990), pp. 320–21.

⁷⁹ Swann, *Curiosities and Texts*, p. 23.

of reporting. “Inquiry and Fact: Directing the Course of Knowledge,” explores the means and methods by which private institutions and public authorities directed travel and inquiry. These essays demonstrate the importance of testimony and fact as integral facets of scientific discovery. In Chapter 2, “Inquiries, Heads, and Directions: Orienting Early Modern Travel,” Daniel Carey explores various attempts to control travel and to organize the information collected, arguing that the purpose of the various inquiries given out to those adventuring abroad was not simply to direct observation, but to discipline it for the advancement of knowledge. The practice of directing the attention of travelers to particular points of interest through printed questionnaires originated in Spain to assist in the exploration and administration of its colonial possessions. Perhaps the most important and well-known set of Spanish questionnaires was produced by Juan de Ovando in 1569, whose inquiries were further developed and disseminated for the whole of Spanish America in 1577 and 1584 by the royal cosmographer Juan López de Velasco, which generated a variety of actual geographical relations.

While the notion, then, of inquiries or heads became important in the collection of data, so, too, were methods of organizing this knowledge. Carey points out the influence on later inquiries and the synthesis of information of Petrus Ramus’s organization of data, the tables of Theodor Zwinger, and Hugo Blotius’s synoptic tables. The Royal Society’s program integrated earlier European methods of systematizing investigations with Bacon’s own program of acquiring natural history. The end result of their work was to serve not only as a means for developing a base or collection of knowledge, but also as a method to verify phenomena or to reject inaccurate claims, which would assist the English to compete more effectively commercially and as a means to exploit the potential for colonialization in the New World.

In Chapter 3, “Forming Knowledge: Natural Philosophy and English Travel Writing,” Julia Schleck examines company travel logs and court travel histories to demonstrate that the communities involved in the production of early modern histories of science and travel share two main characteristics: they are marked by a need to guarantee the reliability of reported events, and they ultimately ground their knowledge claims in the credibility of their reporters. As a member of a collective focused on the goal of increasing trade and company profit, company agents focused largely on geography and goods in their travel accounts, and thus their narratives essentially eliminated the colorful cultural accounts found in court travel narratives. The court travel history, which was written largely for consumption within court society, on the other hand, focused on foreign peoples and communities and was meant to increase a gentleman’s wealth and status at court. Such travel narratives, given their link with politics and patronage, were often viewed with skepticism.

Travel accounts in general possessed an inherent problem with credibility—not unlike that faced by natural philosophers who sought to gain support for their theories. Hence, both the trading companies and the Royal Society adopted similar measures to stabilize the knowledge produced by their members’s reports.

They regularized the form of the reports and encouraged brief descriptive statements about observable natural and/or market phenomena. Thanks to the power of both institutions within English society, this form of report became most closely associated with “fact” and “truth.” What was lost in this revision of travel discourse, however, were the foreign voices notably included in court-based travel narratives. The complexities of intercultural contact are instead reduced to points of geography and economic potential, which nevertheless helped to lay the ideological groundwork for empire.

In Chapter 4, “Geography and Authority in the Royal Society’s Instructions for Travelers,” Jason Pearl demonstrates how fundamental the Royal Society’s instructions for travelers were in disseminating a new geographic paradigm and establishing it as normative. Pearl argues that three particular sets of instructions were notable as the Royal Society sought to standardize conventions for writing about foreign places and, hence, to control—or even delimit—the act of representation. Laurence Rooke’s “Directions for Sea-men (1666),” Robert Boyle’s “General Heads (1666),” and Henry Oldenburg’s “Inquiries for Suratte (1666)” were intended to guide travelers in writing their narratives, using a plain style of commentary devoid of self-aggrandizement and romantic embellishment. In the process of constructing a paradigm for travelers to follow, Rooke’s instructions turned foreign lands into tabular, mappable, measurable space; Boyle’s inquiries objectified them; and Oldenburg’s targeted inquiries naturalized them, in essence, ridding foreign places of their strange characteristics. It is not surprising, then, that in demonstrating the authenticity of their experiences, travelers failed to follow entirely the Society’s instructions. How could one repress wholly those aspects of the experience of traveling that demonstrated the courage of the traveler and betrayed the sometimes vast and incomprehensible differences of distant places?

The essays in Part 2, “New Science, New Worlds,” debate worldly, or perhaps “otherworldly,” travels. The medieval antipodes had connotations of the freakish and the perverse, so that the *Terra Australis Incognita* was widely suspected to be populated by monsters, argues Geraldine Barnes. Her essay in Chapter 5, “Traditions of the Monstrous in William Dampier’s *New Holland*,” examines the collision of medieval tradition and the New Science in William Dampier’s famous description of New Holland in his *A New Voyage Round the World* (1697). Dampier styled himself a scientific traveler, who wrote explicitly according to the Royal Society’s guidelines for travel writers to construct unadorned, empirical observations. He established his scientific credentials in his careful descriptions of new and interesting plants and animals. But just how “modern” was William Dampier’s narrative? How much of his description of New Holland was direct empirical observation? The famously damning description in the printed *A New Voyage Round the World* and the version in the manuscript British Library Sloane 3236 are somewhat different. Where the Sloane manuscript reports unadorned facts, the printed version infuses New Holland and its inhabitants with notions of medieval monstrousness. *A New Voyage* plunders medieval notions of the antipodes and the monstrous races in what purports to be empirical observation

with effects that would shape perceptions of indigenous Australians for the next 300 years.

In Chapter 6, “Writing ‘Science Fiction’ in the Shadow of War: Bodily Transgression in Margaret Cavendish’s *Blazing World*,” Holly Faith Nelson and Sharon Alker address the way in which the discourses of science and warfare inform each other in Cavendish’s *Blazing World*, arguably the first work of science fiction authored by an Englishwoman. Nelson and Alker contend that while Cavendish criticizes aspects of the New Science, she takes advantage of its rejection of traditional ways of knowing and being in the world to formulate and promote her own scientific vision. They contend that the plenitude and potentiality associated with many of the hybrid creatures that appear early in her other worldly setting in *The Blazing World*, represent the creative and productive reconfiguration of material bodies that Cavendish believed could result from a major epistemological shift. However, Nelson and Alker maintain that the personal and national trauma caused by the Civil Wars haunts Cavendish’s work of science fiction, undermining the imaginative potential of new fields of knowledge. They theorize that such haunting becomes increasingly evident as the narrative progresses, particularly when those in power make use of advances in science and technology for military purposes, not to improve or benefit bodies for the betterment of society, but to mutilate and annihilate bodies for political gain, destabilizing the nation in the process. This reality is figured by the robotic, rotting, and zombied bodies that creep into *The Blazing World*. These disturbing hybrid bodies, Nelson and Alker conclude, point to the latent danger in novel forms of knowledge production emerging in the seventeenth century and even lead us to interrogate the coherent and harmonious scientific vision presented in Cavendish’s works of natural philosophy.

In “‘As Far as a Woman’s Reasoning May Go’: Aphra Behn, *Oroonoko*, and the New Science,” the subject of Chapter 7, Judy Hayden argues that Behn’s *Oroonoko: Or, The Royal Slave* provides a complex and paradigmatic example of the interface between science, travel, and literary discourse, and owing to this interconnectedness, the story may offer fascinating insights on the historical development of the novel as well as of “scientific” discourse. In her reading of this story, Hayden points out that the masculine configuration of science and the feminization of Nature in the seventeenth century presented difficulties for women attempting to engage in the discourse of the New Science. Often configured as intractable and perfidious, Nature became a disempowered entity, there for the exploration and the scrutiny of the masculine observer. In *Oroonoko*, however, Behn seeks to overturn this masculine paradigm. Behn offers many of the details noted in Boyle’s “General Heads for the Natural History of a Country,” providing, for example, an ethnographical study of Surinam by detailing the indigenous peoples, even traveling to a remote village to record her information. Behn also offers general notes of the weather, the geography, and the flora and fauna, so that while her text might be read as a memoir, a political critique, an anti-slavery text, or feminist polemic, for example, it is nevertheless both a travel narrative and a natural history of Surinam.

In Chapter 8, “Roger Phequewell, Colonial Man of Science: Re-Reading Imperial Fantasy in *Merryland*,” Marcia Nichols examines Thomas Stretzer’s little known erotic pamphlet, *A New Description of Merryland* (1740), which combined the literary tradition of conceiving America as a playground of sexual pleasure with the colonial prospectus rhetoric that represented the American landscape as female body available to European males. Nichols’s essay avoids the monocular and common consensus of land-as-woman in a critique of early modern imperial adventures and instead seeks to find the multivalent and subversive possibilities presented in the text itself. She explores *A New Description of Merryland* as a parody of contemporary geography and science, equating the purported narrator of the piece, Roger Phequewell, with Stretzer himself. Through the persona of “Roger Phequewell,” colonial man of science and Royal Society correspondent, Stretzer mocks the sexualized language of geography and criticizes the current scientific debates that were limiting women’s role in reproduction, while surreptitiously educating readers of both genders about methods of contraception. This parody opens a potentially empowering space for women by celebrating, instead of maligning, their sexuality.

In a historical period that realized an emphasis on nation and travel and that came to recognize the importance of exploration in establishing the foundation for empire and science, mapping became an intricate and imperative link to discovery and knowledge. Part 3, “Charting Knowledge, Mapping Encounters,” explores the manner in which literary discourse charts and/or maps knowledge. In Chapter 9, “Telescopic Voyages: Galileo and the Invention of Lunar Cartography,” Howard Marchitello traces the literary response—both imaginative and scientific—to Galileo’s telescopic observations, inaugurated by the publication of his *Sidereus Nuncius* (1610). In the aftermath of this publication, the lunar voyage not only adopted a new urgency, but, as some writers of the period argued, a new plausibility. Although the literary lunar voyage had long been viewed as an ideal method by which to effect ridicule of the travel narrative, and while some writers found the new cosmology literally laughable and used lunar travel for satire, such as John Donne in *Ignatius His Conclave* (1611), there were those who offered powerful endorsements for Galileo’s ideas. Writers such as Johannes Kepler in his *Somnium* (c.1624) and John Wilkins in *Discovery of a World in the Moon* (1638), armed with a knowledge of Galileo’s telescopic discoveries, created narratives of a potentially populated moon based not on mere fancy, but rather, as they saw it, on new scientific “fact.” Some of these writers believed not only in an inhabited new world, but also in man’s eventual journey there.

As many of the essays in this collection will attest, “The Baconian concern for precise description prompted the close study of British localities and their antiquities” as well as the study of more distant lands and their societies.⁸⁰ Geography was at the heart of Daniel Defoe’s concerns whatever he was writing, argues Jesse Edwards in

⁸⁰ John Gascoigne, “The Royal Society, Natural History and the Peoples of the ‘New World(s),’ 1660–1800,” *British Journal for the History of Science* 42/4 (April 2009): p. 541.

Chapter 10 in his essay entitled “Defoe the Geographer: Redefining the ‘Wonderful’ in *A Tour thro’ the whole island of Great Britain*.” The kinds of geographies Defoe produced were determined by his particular views on the relationships between science and nature, between government and trade. Defoe’s *Tour*, structured around a series of journeys, is a revisionist geography which seeks to replace poetic and mythological chorographies of Britain with a Baconian appreciation of nature and its potential for productive and profitable human use. Defoe de-mystifies Britain’s celebrated natural wonders, mapping in their place systems of economic production and circulation. Given that these elude and exceed accurate measurement and specification, however, what Defoe ultimately constructs is British trade as a new kind of wonder—an economic sublime. Edwards demonstrates the fascinating paradox, both poetic and political, of Defoe’s geography. It is wedded to a seventeenth-century science and politics which wills the fixity of a subject that Defoe acknowledges and celebrates as elusive.

Collecting was not only an important scientific practice, but a central social practice as well. In Part 4, “The Curiosity of Travel,” Barbara Benedict’s Chapter 11 essay, “Spectating Science in the Early Modern Collection,” argues that the interplay of emotional expansion and analytic calculation which accompanied the traveler on the Grand Tour is encapsulated by the individual’s encounter with one site in particular: the early museum or curiosity cabinet. Such collections represented for English travelers an exotic and luxurious symbol of other cultures’s national achievements. Whereas European collections had been acquired by princes and nobles since the Renaissance, English curiosity cabinets were largely the laboratories of scientific virtuosi. English tourists sought special permission to visit these collections, so that admission to such places became a mark of high, social achievement. Visits to early museums were also a test of national—and scientific—knowledge. In describing and evaluating them, visitors enact their relationship both to nationalism and to science. In the course of her discussion, Benedict analyzes early museums and curiosity cabinets, including travel logs and imaginative literature, such as John Tradescant’s *Musaeum Tradescantianum* (1661) and Nehemiah Grew’s *Musaeum Regalis Societatis* (1681), as well as accounts of the social and scientific experience of viewing curiosity cabinets, such as Thomas Coryat’s *Coryat’s Crudities* (1611) and Philip Skippon’s *A Journey through the Low Countries* (pub. 1732).

The essays that follow, then, offer the reader examples of ways in which at least as early as the sixteenth century, scientific epistemology, literary discourse, and travel began to interconnect. These essays explore the cross-fertilization of disciplines, ideas, concepts, and artistic inventiveness and point to the manner in which these could give rise to nationalism, heroism, and certainly a further desire to inquire and to explore. Lastly, they demonstrate a burgeoning consciousness and understanding of the multivalence of discovered worlds, whether these were new worlds, lunar worlds, imagined worlds, or the world of nation and state.

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PART 1

Inquiry and Fact: Directing the Course of Knowledge



Fig. Pt.1 *Philosophy* by Agostino Veneziano (c.1490–c.1540). Photograph
© Museum of Fine Arts, Boston, P1259.

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Chapter 2

Inquiries, Heads, and Directions: Orienting Early Modern Travel

Daniel Carey

The relationship between travel and natural history in the early modern period has been the subject in the last 20 years of important scholarship on topics ranging from the formation of museum collections, to bio-prospecting, commerce, and the role of travel and science in advancing European imperial ambitions.¹

¹ See, for example, Paula Findlen, *Possessing Nature: Museums, Collecting and Scientific Culture in Early Modern Italy* (Berkeley: University of California Press, 1994); Brian W. Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (Chicago: University of Chicago Press, 2006); Joyce Chaplin, *Subject Matter: Technology, the Body, and Science on the Anglo-American Frontier, 1500–1676* (Cambridge, MA: Harvard University Press, 2001); Jorge Cañizares-Esguerra, *Nature, Empire, and Nation: Explorations in the History of Science in the Iberian World* (Stanford: Stanford University Press, 2007); Antonio Barrera-Osorio, *Experiencing Nature: The Spanish American Empire and the Early Scientific Revolution* (Austin: University of Texas Press, 2006); Susan Scott Parrish, *American Curiosity: Cultures of Natural History in the Colonial British Atlantic World* (Chapel Hill: University of North Carolina Press, 2006); Barbara M. Benedict, *Curiosity: A Cultural History of Early Modern Inquiry* (Chicago: University of Chicago Press, 2001); Londa Schiebinger and Claudia Swan, eds, *Colonial Botany: Science, Commerce, and Politics in the Early Modern World* (Philadelphia: University of Pennsylvania Press, 2004); Londa Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge, MA: Harvard University Press, 2004); Henry Lowood, “The New World and the European Catalogue of Nature,” in Karen Ordahl Kupperman (ed.), *America in European Consciousness 1493–1750* (Chapel Hill: University of North Carolina Press, 1995), pp. 295–323; E. van den Boogaart, ed., *A Humanist Prince in Europe and Brazil: Johan Maurits van Nassau-Siegen 1604–1679* (The Hague: Johan Maurits van Nassau Stichting, 1979); Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven: Yale University Press, 2007); Giuseppe Olmi, *L'inventario del mondo: catalogazione della natura e luoghi del sapere nella prima età moderna* (Bologna: Il Mulino, 1992); Raquel Álvarez Peláez, *La conquista de la naturaleza americana* (Madrid: Consejo Superior de Investigaciones Científicas, 1993); José Pardo Tomás and María Luz López Terrada, *Las primeras noticias sobre plantas americanas en las relaciones de viajes y crónicas de Indias (1493–1553)* (Valencia: Instituto de Estudios Documentales e Históricos sobre la Ciencia, 1993); James Delbourgo and Nicholas Dew, eds, *Science and Empire in the Atlantic World* (New York: Routledge, 2008); Daniela Bleichmar, et al., eds, *Science in the Spanish and Portuguese Empires, 1500–1800* (Stanford: Stanford University Press, 2009).

This substantial body of work has brought attention to the attempts by different institutions to harness travel and natural history to the service of national interests through various means, such as the identification of valuable commodities and medical cures or the potential for crop-substitution. Investigation of these complex phenomena raises an important question: how did travelers know what to observe and record during their journeys?

In fact, the sixteenth and seventeenth centuries witnessed a huge expansion in the development of guidance for travelers, merchants, and explorers, partly to instruct them in proper conduct during their journeys and partly to provide them with topics for useful observation concerning political life, ethnography, and the natural world. Advice of this kind, from a disparate array of individual and institutional sources across Europe became an important tool for orienting the activities of travelers and coordinating information. Variously designed and designated as “inquiries,” “interrogatories,” “directions,” and “heads,” these contributions to early modern travel testify not only to the value of such journeys and to the curiosity they inspired, but also to the elusive goal of disciplining travel, making it useful and coherent in order to advance the cause of knowledge and the exploitation of nature.²

In the domain of natural history, the best known effort to direct the observation of travelers occurred under the aegis of the early Royal Society in the 1660s. The newly formed Society not only developed a set of inquiries for various destinations across the world, but they also encouraged Robert Boyle, probably the most famous and influential of its early members, to compose what he called “General Heads for a *Natural History of a Countrey, Great or small*,” published in the *Philosophical Transactions* in 1666. Yet there was a long history to the travel inquiry that preceded the contributions of Boyle and the Royal Society’s secretary, Henry Oldenburg, that emerges in the sixteenth century out of a distinctive mix of Humanist concerns, political interests, and colonial considerations. The purpose of this essay is to track the development of questions, heads, and directions in

² For prior discussions of this topic, see Justin Stagl, “Vom Dialog zum Fragebogen: Miszellen zur Geschichte der Umfrage,” *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 31/3 (1979): pp. 611–38; Stagl, *A History of Curiosity: The Theory of Travel 1550–1800* (Chur, Switzerland: Harwood Academic, 1995), revised as *Eine Geschichte der Neugier: Die Kunst des Reisens 1550–1800* (Vienna: Böhlau, 2002); Joan-Pau Rubiés, “Instructions for Travellers: Teaching the Eye to See,” *History and Anthropology* 9 (1996), pp. 139–90, reprinted in Rubiés, *Travellers and Cosmographers: Studies in the History of Early Modern Travel and Ethnology* (Aldershot, UK: Ashgate, 2007); Daniel Carey, “Hakluyt’s Instructions: The Principal Navigations and Sixteenth-Century Travel Advice,” *Studies in Travel Writing* 13/2 (2009): pp. 167–85. For the later history of inquiries, see Maurizio Bossi and Claudio Greppi, eds, *Viaggi e scienza: le istruzioni scientifiche per i viaggiatori nei secoli XVII–XIX* (Florence: Leo S. Olschki, 2005); Claude Blanckaert, ed., *Le terrain des sciences humaines: instructions et enquêtes (XVIIIe–XXe siècle)* (Paris: L’Harmattan, 1996).

this period and to provide a context for evaluating the remarkable expansion of production in this area of natural history in the context of the Royal Society.

The essay begins with an examination of questionnaires compiled by Spanish officials in the sixteenth century who sought to document the disparate territories under their control in the New World. The number of themes and the systematic nature of the investigation apparent in these questions are remarkable. Elsewhere in Europe another tradition took shape at the same time in the form of travel advice presented by Humanist authorities concerned, above all, with Continental travel. Publication of these works, some indicating the influence of Ramus's method of organizing knowledge, gave a new rigor to travel as an occasion for observing political and social practices, complemented by attention to the natural environment and resources.

Francis Bacon's intervention, while challenging the method of Ramus, vastly expanded the scope of observation while indicating the potential of travel for revealing the contours of nature. His influence appears, in turn, in Samuel Hartlib's list of inquiries for Ireland, published in the mid-seventeenth century. These contexts contribute in various ways to a deeper understanding of the Royal Society's use of inquiries, providing a way of situating the ambitions evident in their formulation of questions and the traditions from which they developed.

Spanish Questionnaires

The earliest systematic formulation of heads of inquiry coincides with the establishment of institutions under the Spanish crown for the administration of its territories in the New World, particularly the *Consejo de Indias* [the Council of the Indies] formed in 1524. The centralized model of governance and the urgent requirement of information in a standardized format led to the development of printed questionnaires distributed throughout the Spanish possessions. This project was initiated under the reign of Philip II by Juan de Ovando in his capacity as visitor [*Visitador*] to the Council of the Indies. In 1569, he produced a questionnaire with over 30 headings, most of which relate to political and ecclesiastical demography.³ The project was further advanced by Juan López de Velasco after his appointment as *Cronista-Cosmógrafo* under the auspices of the Council of the Indies, resulting in the creation of a version with 135 questions in 1573.⁴ Following Ovando's death in 1575, López de Velasco was responsible for the publication of the key document in this tradition in May 1577, distilled into 50 questions, under the title *Instrucción y Memoria de las Relaciones que se han de hacer para la descripción de las Indias*,

³ Reprinted in Francisco de Solano, ed., *Cuestionarios para la formación de la Relaciones Geográficas de Indias siglos XVI/XIX* (Madrid: Consejo Superior de Investigaciones Científicas, 1988), pp. 11–15.

⁴ “*Ordenanzas para la formación del libro de las descripciones de Indias*” (San Lorenzo de El Escorial, 3 July 1573), reprinted in Solano, ed., *Cuestionarios*, pp. 16–74.

que su Majestad manda hacer para el buen gobierno y ennoblecimiento de ellas.⁵ The success of this undertaking yielded a remarkable body of responses known as the *Relaciones geográficas*. In 1604, the Council issued an expanded version with 355 questions, the work of López de Velasco's successor as *Cosmógrafo*, Andrés García de Céspedes.⁶ The inquiries call for observation on a wide range of issues bound up with the political, moral, and natural history of Spanish territory in the New World.

The development of the questionnaires represented the culmination of longstanding efforts to regulate administrative practices and information-gathering in the vice-royalties of New Spain and Peru dating back to the 1520s in the era of Charles V. These directives took the form of explicit instructions and decrees [*cedulas*.]⁷ For example, two documents from 1528 show considerable

⁵ The *Instrucción* has been reprinted in several places: *Cuestionarios*, ed. Solano, pp. 79–87; Marcos Jiménez de la Espada, *Relaciones geográficas de Indias. Perú*, 3 vols (Madrid: Ediciones Atlas, 1965), vol. 1, pp. 85–90; Francisco del Paso y Troncoso, ed., *Papeles de Nueva España* (Madrid, 1905), vol. 4, pp. 1–7. For a translation, see appendix 1 in Howard F. Cline, “The *Relaciones geográficas* of the Spanish Indies, 1577–1586,” *The Hispanic American Historical Review* 44/3 (1964): pp. 363–71; an alternative translation (by Clinton R. Edwards) appears as an appendix in Howard F. Cline, “The *Relaciones geográficas* of the Spanish Indies, 1577–1648,” in Robert Wauchope (ed.), *Handbook of Middle American Indians*, vol. 12: *Guide to Ethnohistorical Sources Part One*, ed. Howard F. Cline (Austin: University of Texas Press, 1972), pp. 233–7. For discussions of this material, see the critical essays included in Solano's *Cuestionarios para la formación de la Relaciones Geográficas*, pp. xvii–cxxix. For additional critical studies, see Raquel Álvarez Peláez, *La conquista de la naturaleza americana*, pp. 141–231; Jesús Bustamante, “El conocimiento como necesidad de Estado: las encuestas oficiales sobre Nueva España durante el reinado de Carlos V,” *Revista de Indias* 60/218 (2000): pp. 33–57; Sylvia Vilar, “La trajectoire des curiosités espagnoles sur les Indes: trois siècles d’ ‘Interrogatorios’ et ‘Relaciones,’” *Mélanges de la Casa de Velásquez* VI (1970): pp. 247–308; Marcelo Figueroa, “Cosas” del Río de la Plata: *historia natural y administración colonial a fines del siglo XVII español*,” PhD diss., University Pablo de Olavide, Seville, 2007, chapter 2. In English, see Cline, “The *Relaciones Geográficas* of the Spanish Indies, 1577–1586.”

⁶ “Interrogatorio para todas las ciudades, villas y lugares de Españoles, y pueblos de naturales de las Indias Occidentales, islas y tierra firme; al cual se ha de satisfacer, conforme a las preguntas siguientes, habiéndolas averiguado en cada pueblo, con puntualidad y cuidado,” reprinted in *Cuestionarios*, pp. 97–111, and in *Papeles de Nueva España*, vol. 4, pp. 273–88.

⁷ See Bustamante, “El conocimiento como necesidad de Estado.” For the instructions to Dr. Francisco Hernández given in January 1570, which preceded his long excursion to the New World and authorized his remarkable investigations, see “The Instructions of Philip II to Dr. Francisco Hernández,” in Simon Varey (ed.), *The Mexican Treasury: The Writings of Dr. Francisco Hernández*, trans. Rafael Chabrán, Cynthia L. Chamberlin and Simon Varey (Stanford: Stanford University Press, 2000), pp. 46–7. For the Spanish text, see José Toribio Medina, *Biblioteca hispanoamericana (1493–1810)*, 7 vols (Santiago de Chile: Fondo Histórico y Bibliográfico José Toribio Medina, 1958–1962), vol. 2, pp. 293–4.

sophistication in the range of headings they propose and the extent of the survey they request,⁸ while a *Cédula* of 1533 details the need for a “muy larga y particular relación” of the size of the land, its qualities and “estrañezas,” rivers and ports, the animals that breed there, and the rites and customs of the native peoples.⁹

In a document of c.1556, the distinguished cosmographer Alonso de Santa Cruz asked for information on topography, the source and flow of rivers; the existence of mines of gold, silver, or lead; and the availability of diamonds, rubies, emeralds, or other precious stones, and pearl fishing. But he also sought a wider survey of natural history beyond immediate economic use, including “monstrous” animals and all other particularities of “naturaleza.” The proposed ethnography is extensive, indicating Santa Cruz’s Humanist interests,¹⁰ calling for a description of the local king’s state and number of wives; social customs relating to such things as diet and adultery; and religious beliefs regarding the creation of the world and movement of the heavens, the immortality of the soul and the afterlife.¹¹

The most significant contributions to this tradition appeared in questionnaires of 1577 and 1604, which were widely disseminated and yielded an array of responses. The requests were communicated through the structures of political authority in the Spanish New World, starting with the viceroys who directed them to governors; the administrative and judicial bodies known as *audiencias*; mayors [*alcades mayors*], and *corregidores* [local officials];¹² they in turn would ensure that the questionnaires made their way to towns and villages. The questions covered such issues as climate, topographical description, the location of towns, the healthfulness of the environment, and means of sustenance from water supplies to fruits and crops. Some of these questions are clearly conditioned by the need to

⁸ See the facsimile edn of Vasco de Puga, *Provisiones, cédulas, instrucciones para el gobierno de la Nueva España* [1563]. *Collección de incunables americanos siglo XVI*, (Madrid: Ediciones Cultura Hispanica, 1945), vol. 3, pp. 22r–26v; Diego de Encinas, *Cedulario Indiano recopilado por Diego de Encinas* [1596], facsimile edn of Alfonso García Gallo, 4 vols (Madrid: Ediciones Cultura Hispanica, 1945), vol. 1, pp. 339–41.

⁹ Encinas, *Cedulario Indiano*, vol. 1, p. 343. See a closely related document in Vasco de Puga, p. 48v. For discussion of the documents from 1528 and 1533, see Álvarez Peláez, *La conquista de la naturaleza americana*, pp. 163–70; Jesús Bustamante, “El conocimiento como necesidad de Estado,” esp. pp. 39–45. Bustamante points to the connection with the work of Gonzalo Fernández de Oviedo’s *Historia General y natural de las Indias* (1535–1547); see p. 46. Ernesto Schäfer, *El Consejo Real de las Indias: su historia, organización y labor administrativa hasta la terminación de la Casa de Austria*, 2 vols (Seville: Universidad de Sevilla y Escuela de Estudios Hispano-Americanos, 1935–1947), vol. 2, pp. 405–6; Juan Pérez de Tudela, “Estudio preliminar” to Oviedo, *Historia general y natural de las Indias*, 5 vols (Madrid: Atlas, 1959), vol. 1, pp. cxvii–cxix.

¹⁰ On this point see Álvarez Peláez, *La conquista de la naturaleza americana*, p. 180.

¹¹ See Espada, *Relaciones geográficas*, vol. 1, pp. 274–7.

¹² On these offices and political-administrative structures, see J.H. Elliott, *Empires of the Atlantic World: Britain and Spain in America 1492–1830* (New Haven: Yale University Press, 2006), particularly chapter 5.

identify and to exploit natural commodities, such as mines, precious stones, trees, silkworms, or cochineal used in dyeing; but there is scope, in a more disinterested vein, for descriptions of volcanoes, caves, and “all other notable things and admirable products of nature” [*todas las otras cosas notables y admirables en naturaleza*], including the effects of the soil, air, and sky.¹³ Areas of investigation often overlap, of course, as in the request for detail on animals and birds (both wild and domestic, whether native or introduced by the Spanish), together with information on “how they breed and multiply” (*cómo se crean y multiplican*).¹⁴

The information sought on indigenous peoples is substantial: respondents are invited to describe “the measure and kind of their intellects, inclinations, and ways of life” [*el talle y suerte de sus entendimientos, inclinaciones y manera de vivir*],¹⁵ as well as the languages they use and how widely they are shared,¹⁶ along with the Indian names for towns and topographic features, and their meanings. The account of the natives also includes attention to their political condition before the arrival of the Spanish: their government and wars, who exercised dominion over them, and what tribute they owed. But it also extends to their forms of dress in the past and present and their health before and after Spanish contact. Their moral and religious history should be documented, including “religious worship and customs, good or bad” [*las adoraciones, y costumbres buenas, o malas que tenían*].¹⁷ Interactions between the two communities are foregrounded in question 33, which calls for information on trade between the Spanish and “los Indios naturals” and their payment of tribute.¹⁸

The project as a whole is indicative of the centralized nature of Spanish colonial administration and the coordinated bureaucratic approach to the acquisition of knowledge and information as part of an effort to inform decisions and policy-making for an empire held at a vast distance. This is reflected in the decision to entrust the writing of responses to the governors, mayors or *corregidores*, who were allowed to delegate them to “personas intelligentes,” as long as they followed the format of the memorandum. The questions are formulated in a way that engages different levels of knowledge and capacity. As Sylvia Vilar observes, some questions call for commentaries, while others direct the reader by offering choices in an either/or configuration, thus supplying the terms for an answer. In the case of indigenous peoples, the challenge was to find a reporter with the talents of a demographer, linguist, historian, and ethnographer.¹⁹

¹³ Question 21 and question 49 in *Cuestionarios*, pp. 84, 86.

¹⁴ Question 27 in *Cuestionarios*, p. 84.

¹⁵ Question 5 in *Cuestionarios*, p. 82.

¹⁶ See H.R. Harvey, “The *Relaciones Geográficas*, 1579–1586: Native Languages,” in *Handbook of Middle American Indians*, vol. 12: *Guide to Ethnohistorical Sources Part One*, pp. 279–323.

¹⁷ Question 14 in *Cuestionarios*, p. 83.

¹⁸ *Cuestionarios*, p. 85.

¹⁹ Vilar, “La trajectoire des curiosités espagnoles sur les Indes,” p. 255.

The 1604 version of the inquiries (increased to 355 questions), pulls out a number of these topics for further elaboration while drawing the investigation more conspicuously under the rubric of administrative priorities. Respondents are asked for much greater detail about the economic, governmental, judicial, military, and religious organization of their cities and towns as well as the activities of the *encomenderos*.²⁰ The demography of the Spanish territories is sought in greater detail, including the numbers of African *negros* [slaves], *zambaygos* [children of Indians and Africans], and mulattos.²¹ Attention to geography and aspects of Indian social customs remains, such as the role of their *cassiques*, although interest in the latter is not inflected by antiquarian concerns. Much more stress is laid throughout on quantification—not “what” but “how many” being the interrogatory.²² The result is to structure observation and the recording of information more rigorously, even if the disinterested investigation of nature has been subordinated in the process.

The Humanist *ars apodemica*

The questionnaires produced by Spanish authorities were widely distributed throughout their empire, but they were not intended for a wider European audience. To assess the usage of travel inquiries elsewhere in Europe, we need to turn to the genre of advice on travel that developed during the sixteenth century. What sets this literature apart is not only its systematic treatment of the subject of travel, but also its public nature since much of it was designed for the world of print, specifically to establish norms not only of what to observe and record, but also for the behavior of travelers—their moral and spiritual comportment—and to assess the benefits and dangers of venturing abroad. Writings of this sort appeared in diverse generic forms, from the letter of advice to the university oration, the treatise, the essay, or in some cases by way of preface to published accounts of itineraries.²³ They began to appear in significant numbers in the mid-sixteenth century, especially in Germany, Switzerland, the Low Countries, and in England.

²⁰ See questions 39 and 40 in *Cuestionarios*, p. 98.

²¹ Questions 100–113 in *Cuestionarios*, pp. 100–101. Many of these questions had a bearing on the payment of tribute. See Cynthia Milton and Ben Vinson III, “Counting Heads: Race and Non-Native Tribute in Colonial Spanish America,” *Journal of Colonialism and Colonial History* 3/3 (2002), para. 11.

²² For Vilar’s subtle reading, see pp. 258–67.

²³ For previous studies of this literature, see Stagl, *A History of Curiosity; Eine Geschichte der Neugier*; Rubiés, “Instructions for Travellers”; Carey, “Hakluyt’s Instructions”; Carey, “Identity and Its Transformation in the Context of Travel,” in Justin Stagl (ed.), *Sozio-kulturelle Metamorphesen* (Heidelberg: Universitätsverlag Winter, 2007), pp. 65–77; Carey, “Travel, Identity, and Cultural Difference 1580–1700,” in Jane Conroy (ed.), *Cross-Cultural Travel* (New York: Peter Lang, 2003), pp. 39–47; Sara Warneke, *Images of the Educational Traveller in Early Modern England* (Leiden: E.J. Brill, 1995); George B. Parks, “Travel as Education,” in Richard Foster Jones, et. al (eds),

The Humanist orientation of these discussions of travel is immediately apparent. Against the background of a widespread critique or suspicion directed against travel, Humanist commentators intervened to reform and to reorient its objectives. The goals now became distinctively secular rather than spiritual: the accumulation of experience and political wisdom as a result of careful observation; the enhancement of knowledge and understanding through contact with learned authorities; the acquisition and perfection of languages; and the development of a more civil bearing and conversation. The newfound grace and insight, available to those who had traversed Europe and visited its major cities, states, and universities would not only civilize them, but would also represent a vital asset to their country when they returned. With this, they equipped themselves to provide council and to engage in future diplomatic service or other activities on behalf of their prince and government.

In the rhetoric of this material two related emphases are apparent. On the one hand, the goal of encouraging personal development was achieved through reflection on the moral dangers and benefits of travel. This objective was complemented by advice on what to observe during the journey, which made such excursions an occasion not merely of enhanced civility but of greater insight and understanding. In some instances, the focus on information gathering takes over completely, with authorities contributing “heads” or topics of observation, sometimes in the guise of synoptic tables. Such an approach not only systematized knowledge, but also implicitly trained the observer in what to record and what sorts of questions to ask in the midst of travel, including, in many cases, explicit attention to natural history.

The widespread use of tables in the period makes it difficult to trace the origins of the practice with precision. Precedents can be found in various ancient and medieval diagrams, like the *arbor scientiae* used for example in Ramon Lull’s logic.²⁴ Ian Maclean has connected the proliferation of such tables in legal and medical writing with conventions of class logic based on division (between genus and species) or partition (between parts and the whole). From the 1530s through the 1570s and on

The Seventeenth Century: Studies in the History of English Thought and Literature from Bacon to Pope (Stanford: Stanford University Press, 1951), pp. 264–90; Normand Doiron, *L’art de voyager: le déplacement à l’époque classique* (Sainte-Foy, Québec: Presses de l’Université Laval/Paris: Klincksieck, 1995); Melanie Ord, *Travel and Experience in Early Modern English Literature* (Basingstoke: Palgrave Macmillan, 2008); Clare Howard, *English Travellers of the Renaissance* (London: J. Lane, 1914). For bibliographies of this extensive literature, see Justin Stagl, *Apodemiken: Eine räsonnierte Bibliographie der reisetheoretischen Literatur des 16., 17. und 18. Jahrhunderts* (Paderborn: Schöningh, 1983); Luigi Monga, “A Taxonomy of Renaissance Hodoeporics: A Bibliography of Theoretical Texts on *Methodus Apodemica* (1500–1700),” *Annali d’italianistica* 14 (1996): pp. 645–61; and the bibliographical references in the works cited by Howard, Parks, Warneke, and Doiron.

²⁴ See Michael Evans’s well-illustrated essay “The Geometry of the Mind,” *Architectural Association Quarterly* 12/4 (1980): pp. 32–55.

into the seventeenth century, it became common to make use of tree diagrams and dichotomies in medical literature, notably in presenting Galen's work.²⁵

The practice clearly accelerated in a variety of disciplines under the influence of Petrus Ramus [Pierre de la Ramée]. Ramus's major contribution was to reorganize and to simplify aspects of Aristotelian logic in order to create a natural method that would systematize human knowledge. Ramus's *Dialecticae partitiones* (1543), re-titled *Dialecticae institutiones* (1543), adopted a traditional division of logic into *inventio* [invention] and *disposition* or *judicium* [disposition or judgment]. *Inventio* concerns itself with the subject matter or topics [*loci*] of investigation (14 in number). Disposition or judgment pertains to the organization of material in argumentative form. Ramus's method placed greater emphasis on topics and classification than on syllogism as the principal focus of his logic.²⁶ His approach is especially significant in the way that it privileged a starting point of general definitions followed by a series of further subdivisions. As the 1574 English translation of Ramus puts it: "The definition therefore as most generall, shalbe first placed: next followe the distribution, which yf it be manifold, and of divers sortes, shalbe first divided into his integrall partes, next into his formes and kinds."²⁷ The master concept, as Walter Ong suggested, is the distinction between genus and species which provides the dichotomized structure for Ramist logic.²⁸ This focus lent itself to the production of tables—essentially a series of brackets in which particular topics would be broken down into smaller and smaller subdivided units [see Figure 2.1]. The result can often seem rather arid, but its promise was to bring about a full ordering of knowledge through rigorous adherence to the method of division and subdivision.

The broad continuity is apparent if we turn to one of the most significant and comprehensive accounts of travel produced in the sixteenth century: Theodor Zwinger's *Methodus apodemica* (1577). Zwinger had studied with Ramus in Paris and later received him in Basel, where Zwinger was a professor of Greek, during

²⁵ Ian Maclean, "Logical Division and Visual Dichotomies: Ramus in the Context of Legal and Medical Writing," in Mordechai Feingold, Joseph S. Freedman, and Wolfgang Rother (eds), *The Influence of Petrus Ramus: Studies in Sixteenth and Seventeenth Century Philosophy and Sciences* (Basel: Schwabe, 2001), pp. 243–6. Manfred E. Welti, *Die europäische Spätrenaissance* (Basel: F. Reinhardt, 1998), pp. 63–101, confirms the widespread use of synoptic tables in medicine, law, and theology, among other areas, with citation of various examples from the 1530s before Ramus's first table appeared in print. Welti's chronology revises the account in Karl Josef Höltgen, "Synoptische Tabellen in der medizinischen Literatur und die Logik Agricolae und Ramus," *Sudhoffs Archiv* 49 (1965): pp. 371–90.

²⁶ See Walter J. Ong, S.J., *Ramus, Method, and the Decay of Dialogue: From the Art of Discourse to the Art of Reason* (Cambridge, MA: Harvard University Press, 1958).

²⁷ *The Logike of the Moste Excellent Philosopher P. Ramus Martyr*, trans. Roland MacIlmaine [1574], ed. Catherine M. Dunn (Northridge, CA: San Fernando Valley State College, 1969), p. 55.

²⁸ Ong, *Ramus, Method, and the Decay of Dialogue*, pp. 204–5.

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BOOK. VI.

Of the Secrets of Earthly Creatures.

General, Chap. 1.

name, or
of the whole or
Secrets of Earthly Creatures.

greater
and specialle
lesser

Horses, Chap. 2.
Asses, Chap. 3.
Oxen, Chap. 4.
Eails, Chap. 5.
Sheep, Chap. 6.
buck Goats. { Chap. 7.
Goats gelded.
Hogs, Chap. 8.
Dogs, Chap. 9.

mild, — See the Letter A.

Bones, Chap. 28.
of the parts, or { Horns, Chap. 29.
Hair.

General, Chap. 10.

A; if wild in
greater
or in specialle
lesser

Bucks, Chap. 11.
Boars, Chap. 12.
of one kind: as of { Hares, Chap. 13.
Poxes, Chap. 14.
Wolves, Chap. 15.
Mice, Chap. 17.
Moles, Chap. 18.
Weasels, Chap. 19.
Ants, Chap. 20.
Scorpions, Chap. 21.
Wigblice, Chap. 22.
Fleas, Chap. 23.
Lice, Chap. 24.
Snails, Chap. 25.
that creeps, as { Caterpillars, Chap. 26.
Serpents, Chap. 27.

Fig. 2.1

A Ramist table from Johann Jacob Wecker's *De secretis libri XVII* (1660). This item is reproduced by permission of The Huntington Library, San Marino, California, RB 601593.

the winter of 1568–1569. Zwinger had achieved fame with his vast *Theatrum humanae vitae*, a virtual encyclopedia of Renaissance knowledge, with ever-expanding editions appearing in 1565, 1571, and 1586. Zwinger conceived the plan for a work on travel with a younger Dutch associate, Hugo Blotius, who had come there with the assistance of the charitable organization the Erasmusstiftung.²⁹ The work provides an immense number of synoptic tables, breaking down subjects into constituent parts across a vast spectrum of activity associated with travel and offering a synthesis of information in the process.

In a work on Aristotle's *Ethics* (1566), Zwinger credited Ramus with teaching him “to analyze the works of others logically and to construct my own commentaries in synoptic tables.”³⁰ The technique of presentation may derive from Ramus, but Zwinger maintained a much greater attachment to Aristotle, which placed him at odds with Ramus, and his philosophical pedigree was in any case more complex, in part as a result of his medical training in Padua, which gave his work a much stronger empirical component.³¹

The *Methodus apodemica* consists of four books, the first identifying different kinds of travel, which he illustrates in reference to various historical and literary exemplars. The second book focuses on objectives of travel according to the profession of the traveler, while the third and most substantial book provides a description of four famous cities (Basel, Paris, Padua, and ancient Athens) as a model for how to make useful observations. The fourth is less extensive and concentrates on other features worth observing in the midst of travel, under the Aristotelian categories of *locus*, *locatum*, and *actio*, including the art of printing.³² The structuring conception throughout the first three books is the Aristotelian

²⁹ Paola Molino, “Alle origini della *Methodus Apodemica* di Theodor Zwinger: la collaborazione di Hugo Blotius, fra empirismo ed universalismo,” *Codices Manuscripti* 56–7 (October 2006): pp. 43–67. Molino has also established the role of the wealthy merchant Marcos Pérez in proposing and encouraging the project, pp. 49–51. Pérez, who fled Antwerp after the Spanish occupation in 1567, came to Basel and acted as Blotius’s patron. On the Erasmusstiftung, see Lucia Felici, *Erasmusstiftung: la fondazione erasmiana nella storia culturale e sociale europea, 1538–1600* (Florence: Centro Stampa, 2000).

³⁰ Quoted in Carlos Gilly, “Theodor Zwinger’s *Theatrum humanae vitae*: From Natural Anthropology to a “Novum Organum” of Sciences,” in Carlos Gilly and Cis van Heertum (eds), *Magia, Alchimia, Scienza dal ’400 al ’700: L’influsso di Ermete Trismegisto/Magic, Alchemy and Science 15th–18th Centuries: The Influence of Hermes Trismegistus*, 2 vols (Venice: Centro Di, 2002), vol. 1, p. 268.

³¹ On this subject, see Carlos Gilly, “Zwischen Erfahrung und Spekulation: Theodor Zwinger und die religiöse und kulterelle Krise seiner Zeit,” *Basler Zeitschrift für Geschichte und Altertumskunde* 77 (1977): pp. 57–139, and 79 (1979), pp. 125–225. Gilly, *Theodor Zwinger* (Florence: Leo S. Olschki, forthcoming); see also Wolfgang Neuber, “Begriffshierarchie und ramistische Wissenschaft in Theodor Zwingers *Methodus Apodemica*,” in Wilhelm Kühlmann and Wolfgang Neuber (eds), *Intertextualität in der frühen Neuzeit* (New York and Frankfurt: Peter Lang, 1994), pp. 253–78.

³² Molino, “*Methodus Apodemica* di Theodor Zwinger,” p. 59.

account of causation: material, formal, efficient, and final, as apparent in educational travel, scientific travel, diplomacy, and so forth; means, in terms of material conditions and requirements or modes of transportation; and results, in terms of knowledge gained.³³ These issues are presented in tabular form with the use of brackets.

Within this vast compass, Zwinger allocates considerable attention to questions of natural history, as befits not only his training and interests in Hippocratic, Galenic, and Paracelsian medicine, but also the universal conception of his project of knowledge. One of his early divisions, for example, distinguishes two sorts of travel, one labeled “cognitionis,” addressing “qui peregrinantur causa scientiae comparandae,” and another placed under the category of action.³⁴ The subdivision of cognition into “*naturalis*” takes into account medical travel which made possible the study of “many singularities” under the rubric of “methodum artes universalem.”³⁵ Here the instances of Hippocrates and Dioscorides were important. A later table introduced further refinements, proposing attention to inanimate things under the guise of natural history, according to the genera of “region” and the species of mountains, promontories, woods, plains, rivers, fountains, lakes, and seas.³⁶ In his subsequent consideration of animate nature, his table mentions rare plants and trees (noting as precedents the trio of authorities Pausanias, Pliny and Plutarch), and brutes, divided into the good and bad, with the latter featuring the monsters of Africa among other things.³⁷ Later in the text, Zwinger devotes a full chapter to the “precepts” of medical travel specifically.³⁸

The Humanist orientation toward the life of the city is apparent in the use of such tables to structure observations on the political, economic, and social life of four celebrated *urbes*. In connection with his projected collaboration with Zwinger on this work, Hugo Blotius prepared a table for the city of Basel in 1570;³⁹ he identified under the city’s “anima” its leading ecclesiastical institutions and practices, the academic constituents in terms of professors and schools, and finally the “reliqua” associated with political life and military organization. Yet the topographical situation and features of the city were not neglected, subsumed

³³ See Francine-Dominique Liechtenhan, “Théodor Zwinger, théoricien du voyage,” *Littérales* 7 (1990): pp. 151–64; Neuber, “Begriffshierarchie und ramistische Wissenschaft”; see also Lucia Felici, “Theodor Zwinger’s *Methodus Apodemica*: An Observatory of the City as Political Space in the Late Sixteenth Century,” *Cromohs* 14 (2009): pp. 1–18.

³⁴ Theodor Zwinger, *Methodus apodemica* (Basel, 1577), p. 4.

³⁵ Ibid., pp. 4, 6.

³⁶ Ibid., p. 40.

³⁷ Ibid., p. 86.

³⁸ Ibid., book 2, chapter 18.

³⁹ The table is reproduced in Bernhard Siegert, “Die Botschaft des Elefanten: Hugo Blotius’ Projekt der *Bibliotheca Generis Humani Imperatoria* (1575),” in Markus Krajewski (ed.), *Projektemacher: Zur Produktion von Wissen in der Vorform des Scheiterns* (Berlin: Kulturverlag Kadmos, 2004), p. 73. On this subject, see also Molino, “*Methodus Apodemica* di Theodor Zwinger,” pp. 52, 64.

under the heading of “corpus.” The natural historical in this context was not so much an open category of observation as a domain conditioned by the city’s life.

The convertibility between tables, which essentially provided heads of observation, and the formulation of questions for travelers appears in Blotius’s practice. In addition to the table just discussed, he developed a list of 117 questions in 1570 which encompassed the general range of observations necessary for travelers, including the political, geographic, religious, and social, geared towards the city of Basel. In this context natural history played a modest part, but it was nonetheless mentioned; he asked about rivers and the fish they yield; any mountains in the vicinity and whether they contain gold, silver, lead, or gems of any kind; and later what methods against the plague were observed.⁴⁰

The precise extent of Ramus’s influence has been subject to debate, but there is no doubt that the method of division which he popularized was important for a range of figures who wished to treat travel systematically, not only to exert some control over the activity, but also to order the resulting observations. A case in point is Albert (or Albrecht) Meier’s *Methodus describendi regiones, urbes et arces, et quid singulis locis praecipue in peregrinationibus homines nobiles ac docti animadvertere, observare et annotare debeant* (Helmstedt, 1587),⁴¹ translated into English in 1589 under the title *Certaine briefe, and speciall Instructions for gentlemen, merchants, students, souldiers, mariners, &c. Employed in services abrode, or anie way occasioned to converse in the kingdoms, and governments of forren princes* (1589). The document begins with twelve “general sections” or “places of ... discourse”: cosmography, astronomy, geography, chorography, topography, husbandry, navigation, the political and ecclesiastical state, and finally literature, histories, and chronicles. Thus natural historical description is very much included within the observational field of the traveler. Each section is then broken down into further subtopics of observation. For example, under husbandry the headings include the seasons, winds, healthfulness of the climate; the soil, crops, harvests, the woods (and whether they yield masts for shipbuilding); precious stones; birds, fish, “Noisome and hurtful beasts” [*serpentes* and *viperaria* as the Latin edition has it],⁴² including “basiliskes” [the English translator’s addition];⁴³ and “All other commodities of the place that are knowne, either agreeing, or not agreeing with other countries and regions, and whatsoever

⁴⁰ Blotius’s list of questions appeared in print in Paulus Hentznerus, *Itinerarium Germaniae, Galliae, Angliae, Italiae*, 3rd edn (Nuremberg, 1629), pp. Yy7r–Zz6v (see questions 9, 10, and 106 on natural history). For a German translation, see Stagl, “Vom Dialog zum Fragebogen,” pp. 631–8.

⁴¹ For an edition, see Mohammed Rassem and Justin Stagl, eds, *Geschichte der Staatsbeschreibung: Ausgewählte Quellentexte 1456–1813* (Berlin: Akademie Verlag, 1994), pp. 160–68. The work was commissioned by Heinrich Rantzau, the learned governor of Schleswig-Holstein.

⁴² Ibid., p. 164.

⁴³ On basilisks, see Paula Findlen, “Inventing Nature: Commerce, Art, and Science in the Early Modern Cabinet of Curiosities,” in Pamela H. Smith and Paula Findlen (eds),

else that place hath, strange, new, notable, and commodious.”⁴⁴ It is obvious that the list overlaps in several areas, such as geography, chorography, and topography, and is not particularly coherent. Nevertheless it provides a basic method of organizing information and recognizing what is both relevant and desirable for travelers to record. Although he chose not to present it in this fashion, Meier’s work could easily have been converted into tabular form.

Others who contributed to the emerging methodizing of travel employed synoptic tables in a fashion consistent with Ramus and Zwinger. In England the earliest example appears to be Giles Fletcher’s table prefacing his account of Russia in 1591, based on his embassy from 1588–1589, which serves not merely as a table of contents, in effect, but as an analytical account of Russian politics and society.⁴⁵ Another figure with wider diplomatic experience, William Davison, the disgraced Secretary of State, produced a synoptic table that, like Fletcher’s, focused on political observation. Although it did not appear in print until 1633, the occasion for its composition was the departure of Davison’s son Francis, then enjoying the patronage of the Earl of Essex, on a Continental journey in 1595; Francis would produce, as a result, an account of Saxony.⁴⁶ Robert Dallington made use of tables in two works on France and Italy published in 1605, based on his Continental travels in 1595–1600. His account of France was prefaced by a discourse on the method of travel, which shows the close relationship between the formal essay and the synoptic table. In his tables for France and Italy, Dallington allocates attention to natural history under two headings: cosmography and chorography. The former includes climate and astrological influences; the latter he breaks down into hydrography and geography, covering lakes, rivers, and their navigability, and the provinces, commodities, and population of the territory, respectively.⁴⁷ In terms of scope and organization, the influence of Zwinger is

Merchants & Marvels: Commerce, Science, and Art in Early Modern Europe (London: Routledge, 2002), pp. 297–323.

⁴⁴ Albrecht Meier, *Methodus describendi regions, urbes et arces ... et annotare debeant* [1587], translated as *Certaine briefe, and speciall Instructions for Gentlemen*, trans. Philip Jones (London: John Woolfe, 1589), pp. 10–11.

⁴⁵ Giles Fletcher, *Of the Rvsse Common Wealth* (London, 1591), p. A4v. For some discussion, see Marshall T. Poe, “*A People Born to Slavery*”: *Russia in Early Modern European Ethnography, 1476–1748* (Ithaca: Cornell University Press, 2000), p. 58, *passim*.

⁴⁶ William Davison, “*Most Notable and Excellent Instructions for Travellers*,” in *Profitable Instructions; Describing what speciall Observations are to be taken by trauellers in all Nations, States and Countries* (London, 1633), pp. 1–24. On Francis Davison, see Paul E.J. Hammer, “*Essex and Europe: Evidence from Confidential Instructions by the Earl of Essex, 1595–96*,” *English Historical Review* 111/441 (1996): pp. 364+nn.

⁴⁷ Robert Dallington, *A Method for Trauell* (London, c.1605), p. A2v; Dallington, *A Survey of the Great Dvkes State of Tuscany. In the yeare of our Lord 1596* (London, 1605), p. A2v. For discussion, see Rubiés, “*Instructions for Travellers*,” pp. 167–70 (with reproduction of the tables); Karl Josef Höltgen, “*Sir Robert Dallington (1561–1637): Author, Traveler, and Pioneer of Taste*,” *Huntington Library Quarterly* 47/3 (1984):

apparent in Sir Thomas Palmer's comprehensive *Essay of the Meanes how to make our Travailles into forraine countries, the more profitable and honourable* (1606). He included four extensive tables summarizing his text and providing a structured conception of the relationship between different forms of travel. In relation to natural history, Palmer's division of travelers into nobles and commoners allocated physicians to the former rank, urging them in his three-point list: "1. To make diligent observation of all Common and Accidental things. 2. To be aswel expert as learned. 3. To be careful to transplant what may profit their country."⁴⁸

In connection with the Humanist advice literature on travel, it is important to mention the major geographical text in the period, Bernhard Varenius's *Geographia generalis* (1650), although it is usually overlooked in this context. Among Varenius's divisions of the subject of geography, he recognized what he called special or particular geography which related to every country, with a further division into headings of the celestial, terrestrial, and human.⁴⁹ The celestial related to stars and their motion, the distance of the country from the equator, and, although he discounted it, the particular governing (*praeficiunt*) astrological sign of every country. He identified 10 terrestrial headings, including the limits and circumference of the territory; figure; magnitude; mountains; waters; woods, and deserts; fruitfulness or barrenness and the fruits it produces; minerals; and animals. His third heading was that of human geography. Here he mentioned another ten "affectiones" or properties: the stature of the natives (such as shape, color, length of life, and diet); traffic and arts; "virtues, vices, genius, and learning" [*scholae*]; social customs in the form of burials, marriages, christenings, and so forth; speech and language; the mode of government [*Regimen politicum*]; religion and ecclesiastical government; cities and places of note; memorable histories; and the famous men, inventions, and artifice of the place.⁵⁰ In this digest Varenius covered a vast range of subjects comprehending natural, social, and political history. Its significance lies in its applicability to any country, which gives it a great deal in common with the far more extensive advice supplied by Zwinger, Meier, Palmer, and others. The format is that of headings, but these could just as easily be styled as questions since they serve the same function of directing and structuring the observation of travelers.

pp. 147–77. Dallington was also associated with the Earl of Essex through the Manners brothers and was arrested after being involved in Essex's rebellion. He later entered the service of Prince Henry, to whom Sir Thomas Palmer dedicated his treatise of travel (see subsequent note).

⁴⁸ Sir Thomas Palmer, *An Essay of the Meanes hovv to make our Trauailles, into forraine Countries, the more profitable and honourable* (London, 1606), preliminary table. His account in the text of the duty of physician travelers introduced further discriminations and qualifications (pp. 31–4).

⁴⁹ Bernhardus Varenius, *Geographia Generalis: in qua affectiones generales telluris explicantur* (Amstelodami:Apud Ludovicum Elzevirium, 1650).

⁵⁰ On Varenius see, Margret Schuchard, ed., *Bernhard Varenius (1622–1650)* (Leiden: Brill, 2007).

Bacon's Reform and Hartlib's "Interrogatory"

An important alternative tradition to the Ramist method of organizing knowledge appears in the work of Francis Bacon, and from it a significant new source for queries and heads of inquiry can be identified. If the Ramist method proceeded by starting with what is better known and more general before instituting divisions that brought the inquiry to the level of the more particular, Bacon may be said to have reversed the course by adopting a program of induction that started with particular empirical observations, using these as building blocks for the advancement of knowledge.⁵¹ This approach, in his estimation, avoided obvious pitfalls of introducing errors of judgment and false assumptions treated as axiomatic, which recur, for example, in syllogism or as a result of the various "Idols" that beset the mind. Of course Bacon's goal is ultimately to produce an account of nature every bit as comprehensive as that of his rivals, but he wants to attempt it from a different route, in part by recognizing the collective nature of the task in hand and the value of more discrete inquiries. Such investigations are designed to yield an account of natural history that, following Bacon's *Organon*, the "Interpreter" will one day coordinate. His emphasis is therefore on the accumulation of what we would call data rather than on ordering this material in the first instance. As Lisa Jardine points out, Bacon allows two preliminary groupings: "the material may be arranged according to a series of questions, or particular topics devised by the investigator, which focuses attention on particularly important aspects of the subject."⁵² Questions and headings play a significant role in organizing natural histories by focusing attention, yet without prejudicing knowledge in the process. Furthermore this enterprise can continue independently of the higher philosophical purpose of reforming knowledge and scientific method more generally.

Bacon gives us the clearest insight into this in his *Parasceve, ad historiam naturalem et experimentalem* ["A Preparative to a Natural and Experimental History"], part of the *Great Instauration*. Here he emphasizes the "army of workers" needed to advance the project, an undertaking worthy of a king in its scale and ambition.⁵³ At the end of the short work, he presents a catalogue of 130 different "Histories" embracing an enormous array of subjects. Three broad divisions structure the investigation as a whole: the history of "generations,"

⁵¹ See Lisa Jardine, *Francis Bacon: Discovery and the Art of Discourse* (Cambridge: Cambridge University Press, 1974), pp. 44–5, 78. For Bacon's vituperations against Ramus, see Mordechai Feingold, "English Ramism: A Reinterpretation," in Mordechai Feingold, Joseph S. Freedman, and Wolfgang Rother (eds), *The Influence of Petrus Ramus: Studies in Sixteenth and Seventeenth Century Philosophy and Sciences* (Basel: Schwabe, 2001), pp. 171–3.

⁵² *Ibid.*, p. 136.

⁵³ Francis Bacon, *The Instauratio magna Part II: Novum organum and Associated Texts*, ed. with facing-page translations by Graham Rees and Maria Wakely (Oxford: Clarendon Press, 2004), p. 451.

“pretergenerations,” and “arts,” brought together in their “abundance and variety.”⁵⁴ In his list of histories, Bacon mentions (among many others) the history of the earth and sea, their shape and extent; geographical natural history; the history of winds, clouds, and rain; histories of trees, plants, and shrubs, of fish, birds, quadrupeds, and serpents. A series of histories related to human beings then follows, some of which are physical, others psychological, and others still relate to trades and human practices (or arts). Thus he mentions human shape, stature, appearance, and how they vary according to race and climate; physiognomy; the faculties, humors, emotions, body types, nutrition, music, drugs, and medicine; dyeing, pottery, wickerwork, gardening, military matters, and prestidigitation and the arts of itinerant performers.⁵⁵ The copiousness of the undertaking is certainly not in doubt.

Bacon emphasizes that questions can be put to good use in this investigation, although they should concern facts rather than causes [*non Causarum dico, sed Facti*].⁵⁶ Questions have the valuable function of provoking and encouraging further inquiry. For example, in relation to the history of the earth and sea, the question can be asked whether the Caspian has tides and whether a southern continent exists [*terra australis*] or only islands. The influence of Bacon’s legal training is also apparent. Before listing his proposed histories, he indicates that he intends to supplement them with particular questions to provide instruction in what to investigate and record: “These questions are like a kind of particular *Topics*; for (taking my cue from civil suits) I mean, in this *Great Action* or *Trial* ... to cross-examine by articles the arts and nature itself.”⁵⁷ The reference to topics reminds us of the organization of knowledge into headings or *loci communes*, while the technique of cross-examination draws on legal practice.

Bacon’s impact on subsequent practice in formulating questions or inquiries filters through the seventeenth century, most notably in activities associated with Samuel Hartlib and the Royal Society. They drew powerful inspiration and philosophical principles from the Baconian programme of reforming natural knowledge and methods, in which the use of questionnaires formed a component part. In 1652, Hartlib was responsible for the publication of “An Interrogatory Relating more particularly to the Husbandry and Natural History of Ireland.” This document, mentioned but rarely discussed by historians of the use of inquiries, adopted an alternative mode of presentation for asking questions, but its Baconian pedigree is still apparent.

The “Interrogatory” appeared as an appendix to the second edition of *Samuel Hartlib his Legacie* (1652). It grew out of the work of Gerard Boate (1604–1650) and his brother Arnold Boate (1606–1653) in producing a natural history of Ireland. Both brothers were born in Gorinchem in the Netherlands, trained in medicine in

⁵⁴ *Ibid.*, pp. 455 and 457.

⁵⁵ *Ibid.*, p. 485.

⁵⁶ *Ibid.*, p. 469.

⁵⁷ *Ibid.*, p. 473.

Leiden, and emigrated to England around 1630. Gerard was appointed physician to Charles I and later came in contact with Robert Boyle and other important figures with Irish political interests and holdings. He also joined the circle of Samuel Hartlib. Gerard's composition of *Irelands Naturall History* (1652) was based not on his personal experience of the country but rather on a number of sources, including his brother Arnold's eight years of travel there where he became physician to Archbishop Ussher and the Lord Deputy Thomas Wentworth. After Gerard's death in 1650, Hartlib was responsible for publishing the work with Arnold's editorial support.⁵⁸

Authorship of the "Interrogatory" appears to have been the work of Arnold Boate.⁵⁹ In the Hartlib circle's productions, the commitment to a collective goal of advancing natural knowledge was paramount. Here the project of reform extends to the colonial context of Ireland. To this extent, its purpose—and to some degree its content—comes closer to the kinds of questions raised in the Spanish literature with which I began, although the focus is more resolutely on natural history and trades rather than on an ethnography of indigenous customs beyond attention to local methods of managing agriculture and trade.

The "Interrogatory" is presented in the unusual format of an alphabetical index, with entries running from "Appricocks" to "Wormes." There are 362 separate entries with related queries given under each term.⁶⁰ Typically, each entry includes three or more queries, although some headings have only one and others compile a more extended series. The focus on documentation, evident in the wish to determine whether different animals, birds, or trees exist in Ireland, complements the governing concern with establishing the country's natural resources, including food stuffs, methods of animal husbandry and agriculture, and the country's trades and manufactures of different kinds. Basic surveying of shores, rivers, and land with arable potential, supports the plan of assessing Ireland's suitability for commercial and agricultural development. In relation to the productive potential of different trades or natural commodities, the question is frequently posed of what "charges" they incur and what profit they generate, as in the case of pilchard or eel fishing. With respect to animals and birds, the index typically requests information on the "natures and properties" of different creatures, such as dogs, eagles, otters, owls, or pheasants. In the instance of cranes, crows and cuckoos,

⁵⁸ See Patricia Coughlan, "Natural History and Historical Nature: The Project for a Natural History of Ireland," in Mark Greengrass, Michael Leslie, and Timothy Raylor (eds), *Samuel Hartlib and Universal Reformation: Studies in Intellectual Communication* (Cambridge: Cambridge University Press, 1994), pp. 298–317.

⁵⁹ Charles Webster, *The Great Instauration: Science, Medicine, and Reform, 1626–1660* (London: Duckworth, 1975), p. 431. T.C. Barnard gives the honor to Hartlib in "Miles Symner and the New Learning in Seventeenth-Century Ireland," *Journal of the Royal Society of Antiquaries of Ireland* 102/2 (1972): p. 134.

⁶⁰ There are also a number of words without queries attached (such as carrots, cats, hogs, hedging, and lightning). Presumably the reader was encouraged to remember these subjects for observation and to supply relevant questions from those already given.

the question is raised regarding “what kind of meat” they provide, while an added query for badgers, hedgehogs, and rooks makes explicit the question “whether any eat them.” Only one heading, “Diseases of men,” relates directly to the native inhabitants, asking what ailments are “peculiar and reigning in some parts of the country? The nature, causes, cures thereof.”⁶¹

Some of the questions posed in the “Interrogatory” derive from Boate’s natural history, like the request for further information on diseases incident in the country.⁶² The heading “Wonderful things” asks about “The turning of wood into stones, in Logneagh and the like; what particulars have been observed about that?” Boate had included a report on this phenomenon, based on his brother Arnold’s investigation. Arnold’s sources affirmed it, and Gerard was willing to accept the possibility: “in it self [this] is credible enough, seeing that in many parts of the world there are found waters indued with that virtue.”⁶³ However, Boate’s *History* was far more dismissive about the alleged curative powers of holy wells, the virtue of which existed only in the “vain imagination of the superstitious people.”⁶⁴ The “Interrogatory” expresses interest in this subject in more neutral terms, asking for a “Particular description of all Wells that have any thing rare, or observable in them, either for the nature of the water, depth, &c.”⁶⁵

The range of subjects covered in the list is certainly impressive. Many of Bacon’s numerous proposed histories appended to the *Parasceve* find some place within the scope of the investigation. Above all, the continuity with Bacon appears in the interest in a mixture of trades, natural phenomena, and topography, with the practical motive of mastering nature evident alongside the wish to describe it. The alphabetical principle of organization also has interesting implications. This form of presentation in itself suggests an encyclopedic approach to natural history. At the same time, the alphabetical list does not impose a structure defining the

⁶¹ “An Interrogatory Relating more particularly to the Husbandry and Natural History of Ireland,” in *Samuel Hartlib His Legacie*, 2nd edn (London, 1652), p. R4r.

⁶² Gerard Boate had affirmed that Ireland was free from a number of diseases, which he attributed to a “hidden property of the Land and the Air it self.” See *Irelands Naturall History* (London: John Wright at the Kings Head in the Old Baily, 1657), p. 179. In general Boate declared the people to be healthy.

⁶³ *Ibid.*, p. 79.

⁶⁴ *Ibid.*, p. 55. See also pp. 74–[6] for Boate’s discussion of “St. Patrick’s Purgatory” in Lough Derg, a cave held to descend into purgatory and hell. Boate declared this to have been exposed as an illusion by Richard Boyle, earl of Cork, and Adam Loftus, the Lord Chancellor of Ireland. The entry in the Hartlib “Interrogatory” for “Patricks-Purgatory” does not enter into detail but simply calls for a “Perfect description of the Logh, Island, Caves, and the whole proceedings there” during the justiceship of Boyle and Loftus (S4v).

⁶⁵ Hartlib, “Interrogatory,” p. T4v. For a subsequent set of inquiries for Ireland, see William Molyneux, *Whereas there is an accurate Account and Description of Ireland designed to be made Publick in the English Atlas undertaken by Moses Pitt of London* (Dublin, 1682); rpt. in K. Theodore Hoppen, *The Common Scientist in the Seventeenth Century: A Study of the Dublin Philosophical Society 1683–1708* (London, 1970), pp. 200–201.

category within which an individual object or activity should be viewed, but instead trains observation on the entity or industry itself. As such, the “Interrogatory” follows Bacon’s inductive pattern, on the whole, rather than providing a discrete framework in the manner of a Ramist table, although even Bacon’s *Parasceve* introduced some broad headings under which his enumerated histories appear, such as generations, pretergenerations, and arts.

The Royal Society and Boyle’s “General Heads”

The relationship between travel, natural history, and the use of inquiries entered a new phase with the establishment of the Royal Society in 1660.⁶⁶ The Society embraced Bacon’s methodological program, and, like Hartlib, recognized the value of dispatching specific questions for travelers to answer during and after their journeys.⁶⁷ The institutional role of the Society in some ways mirrored that of the Spanish *Consejo de Indias* by formulating questions that would help to systematize the investigation of nature and colonial resources. Although the Society lacked the authority of the state, Fellows could use their political and social connections to advance the project of investigating nature throughout the globe, with, for example, the Admiralty, or the East India Company, or by drawing on colonial contacts. The range of questions that were asked of locations as diverse as Guinea, Virginia, Surat, or the Caribbean testify to the Society’s distinctively Baconian concerns with acquiring natural knowledge as part of a universal history. Equally, they built on Bacon’s practical and “national” orientation. They emphasized the need to sharpen English commercial competitiveness by gaining insight into profitable commodities and trades or arts employed in manipulating nature, while defending and exploiting the potential for English colonial possessions in the New World. At the same time, the Society recognized the need for more general guidance on what to observe in the midst of travel.⁶⁸ For this they turned to Robert Boyle for additional advice. The differences in form between these contributions can be traced to alternative traditions described above in this essay. Yet they all

⁶⁶ I first discussed this in “Compiling Nature’s History: Travellers and Travel Narratives in the Early Royal Society,” *Annals of Science* 54/3 (May 1997): pp. 269–92. For an important recent account with significant new information and insight, see Michael Hunter, “Robert Boyle and the Early Royal Society: A Reciprocal Exchange in the Making of Baconian Science,” *British Journal for the History of Science* 40/1 (2007): pp. 1–23.

⁶⁷ On the methodological connections between Bacon and the Royal Society, see William T. Lynch, *Solomon’s Child: Method in the Early Royal Society of London* (Stanford: Stanford University Press, 2001). On the historical connections between Bacon, Hartlib, and the ethos of the Royal Society, see Webster, *The Great Instauration*.

⁶⁸ Hunter, “Robert Boyle and the Early Royal Society,” pp. 16–17; Hunter notes that a version of general inquiries for travel circulated in the Society in January 1662, prior to the one prepared by Boyle, but unfortunately no copy appears to have survived.

shared in the ongoing effort to make travel useful, to give it a focus and orientation capable of serving national interests while advancing ambitious intellectual goals. Soon after it was formed, the Royal Society established a committee assigned to devise “proper questions to be inquired of in the remotest parts of the world” at a meeting of 6 February 1661. The committee included a number of key figures from the early life of the organization, including Viscount Brouncker, Sir Robert Moray, Robert Boyle, John Wilkins, John Evelyn, and Henry Oldenburg, Secretary of the Society. In October of that year, a further committee was appointed to review the inquiries. Minutes of meetings in the 1660s record the discussion and development of inquiries for an array of destinations such as Iceland and Greenland (compiled by Robert Hooke), Virginia, Hungary and Transylvania, Egypt, and the East Indies.⁶⁹ Throughout the first decades of the Society’s existence, the minutes record discussions about the need to compile queries, together with requests that individual fellows peruse existing lists and add suggestions to them, along with instructions to deliver them to departing travelers.⁷⁰ This was part of a much larger pattern of making use of inquiries by the Society, evident in the “Georgicall” committee’s recommendation of queries on agriculture or the “Queries concerning vegetation,”⁷¹ indicative of Bacon’s ongoing influence.

Henry Oldenburg communicated the travel inquiries to a wider public in the *Philosophical Transactions*. The questions or topics are normally presented in fairly random order, usually numbered but sometimes assembled together in paragraphs. The fact that they relate to specific destinations gives them something in common with the Hartlib “Interrogatory” for Ireland, although they do not share the alphabetical arrangement; like that document, they exhibit miscellaneous interests ranging from curiosities of nature to local trades. Some of the variety apparent within the inquiries for particular countries or territories stems from the fact that different individuals compiled them, either on their own initiative or by request. For example, Robert Hooke’s “Enquiries for Iceland,” dated 21 January 1662/1663, ask a number of astronomical questions which do not appear in other lists. He also invites travelers to conduct experiments on site, such as the Torricellian experiment on barometric pressure or to note whether mercury will “congeal” there, or to discover what quantity of salt results from boiling salt water.⁷² Endorsement of this scale of activity was somewhat unusual, but lists of

⁶⁹ See Thomas Birch, *The History of the Royal Society*, 4 vols (London, 1756–1757), vol. 1, pp. 68, 69, 79, 119, 130, 144, 165–6, 180, 192, 199, 297–8, 318–19.

⁷⁰ For further references, see Carey, “Compiling Nature’s History,” pp. 273–4; and Hunter, “Robert Boyle and the Early Royal Society,” pp. 13–16.

⁷¹ “Queries Concerning Vegetation,” *Philosophical Transactions* 3/40 (1668): pp. 797–801; on the work of the “Georgicall” committee, see Michael Hunter, *Establishing the New Science: The Experience of the Early Royal Society* (Woodbridge: Boydell, 1989), chapter 3.

⁷² Robert Hooke, *Philosophical Experiments and Observations of the late Eminent Dr. Robert Hooke*, ed. William Derham (London, 1726), pp. 20–22.

inquiries prepared by others shared his experimental impulse to the extent that they ask travelers to return with samples of particular entities.⁷³ More familiar and representative is Hooke's interest in receiving information on "Any thing ... strange or remarkable among the Beasts, Birds, Insects, or Fishes."⁷⁴ Observations on the singular and bizarre remained a preoccupation of travel inquiries. Part of this stems from a virtuoso interest in rarities, but the activity also served a documentary purpose in establishing the diversity of nature.

Two features of these sets of inquiries should not be overlooked. The first is that they derive explicitly, in a number of cases, from a reading of prior travel literature. This suggests a continuity of practice with some of the questions in the Hartlib "Interrogatory" which follow up on Gerard Boate's *Irelands Naturall History*. The Royal Society's inquiries for Guiana and Brazil, for example, indicate the source of the questions, all of which came either from the Dutch traveller Jan Huyghen van Linschoten, the Dutch naturalist Gulielmus Piso or the Jesuit authority Pierre Pelleprat.⁷⁵ In the prefatory remarks to a new batch of inquiries for the Antilles and Caribbean islands, which supplemented those already given for the West Indies, Oldenburg stated that they were "collected out of the Relations of several Authors writing of those Islands," such as Charles de Rochefort's *Histoire naturelle et morale des Isles Antilles de l'Amérique* and Richard Ligon's *A True and Exact History of the Island of Barbados*.⁷⁶ Similarly, the inquiries for Surat were taken from "the Relations publisht by Purchas, Linschoten, and others."⁷⁷

The second thing worth noting is that these inquiries often served the express purpose of verifying or rejecting the existence of unusual phenomena reported in prior travel accounts. Thus the "Inquiries for Hungary and Transylvania" ask "Whether there be in *Hungary* such a River, as is mentioned in Busbekius, whose water is so hot, and which is yet so ful of Fish, that he saith, one would expect, that all the Fish drawn thence, would come out boyled?"⁷⁸ Here the source was Ogier de Busbecq, the well-traveled sixteenth-century diplomat. Thomas Henshaw's inquiries for Egypt asked whether the amount of amber sold in Cairo came from a specific tree in Egypt or Ethiopia, as the French naturalist Pierre Belon had reported (following Diodorus Siculus). His question about the ichneumon or Egyptian water rat was less precise in identifying its sources, merely tracing to

⁷³ For example, "a Specimen of all *Medicinal Herbs*" mentioned in the inquiries for the Antilles and Caribbean, *Philosophical Transactions* 3/33 (1668): p. 636.

⁷⁴ Hooke, *Philosophical Experiments*, p. 21.

⁷⁵ *Philosophical Transactions* 2/23 (1666–1667): p. 422.

⁷⁶ *Philosophical Transactions* 3/33 (1668): p. 634. The extraction of inquiries from Rochefort's book as part of the work of the Committee of Correspondence is mentioned in a letter of Oldenburg's to Boyle of 6 October 1664. *The Correspondence of Henry Oldenburg*, ed. A. Rupert Hall and Marie Boas Hall, 13 vols (Madison: University of Wisconsin Press, 1965–1973; London: Mansell, 1977–1986), vol. 2, p. 248.

⁷⁷ *Philosophical Transactions* 2/23 (1666–1667): p. 415.

⁷⁸ *Philosophical Transactions* 2/25 (1666–1667): p. 469.

“Old Writers” the claim that the creature could kill a crocodile by “skipping into his Mouth, and gnawing his way out.”⁷⁹ The multiplication of witnesses was built into the whole design of the operation. In Oldenburg’s preface to the “Inquiries for Suratte,” he states that copies had already been sent to India and that he had received some responses. But he purposely refrained from printing these replies “because ’tis altogether necessary, to have confirmations of the truth of these things from several hands, before they be relied on.”⁸⁰

Early on the Royal Society seems to have recognized the need to supply more general advice on what to observe in the midst of travel. Robert Boyle was prevailed upon to supply “General Heads for a *Natural History of a Countrey, Great or small*,” a four-page piece published in the eleventh number of the *Philosophical Transactions* in 1666.⁸¹ This intriguing document, which was tirelessly circulated by Henry Oldenburg, along with copies of inquiries for specific destinations,⁸² is perhaps the best known single text in the tradition of travel inquiries. Consideration of Boyle’s way of organizing the task of travel and natural history, and his sources for doing so, therefore merit close attention. Three main contributions to his conception suggest themselves: Bacon, Varenius, and Hartlib.

Boyle begins the “General Heads” by dividing what should be observed into three areas: the Supraterraneous, Terrestrial, and Subterraneous. But he comments that this division has been made “variously (and almost at pleasure),” suggesting that it represents a mere matter of convenience rather than a rigid structure.⁸³ The question is where this division, however provisional, comes from. Hartlib’s alphabetical “Interrogatory” is obviously not a candidate. Bacon’s *Parasceve* offers a different scheme, dividing his proposed histories into generations, pretergenerations, and arts. Much closer is Varenius’s division of the special geography of individual countries [*singulas regions*] into the categories of *celestia, terrestria, and humana*.

⁷⁹ *Ibid.*, p. 471.

⁸⁰ *Philosophical Transactions* 2/23 (1666–1667): p. 415.

⁸¹ A version of this document, together with the Royal Society’s inquiries for specific countries and regions, appeared after Boyle’s death as *General Heads for the Natural History of a Country, Great or Small* (London, 1692). This volume may have been compiled by Denis Papin. See the editorial discussion in *The Works of Robert Boyle*, ed. Michael Hunter and Edward B. Davis, 14 vols (London: Pickering & Chatto, 1999–2000), vol. 5, pp. xli–xlv.

⁸² See, e.g., Oldenburg, *Correspondence*, vol. 3, pp. 58, 87, 207, 243, 276–7, 340–41, 526; vol. 4, pp. 133, 166–7; vol. 5, pp. 315, 440. Oldenburg apparently regarded Boyle’s “General Heads” as a collaborative piece since he produced a restructured version of the document (printed as an appendix in Hunter, “Robert Boyle and the Early Royal Society,” pp. 22–3).

⁸³ Robert Boyle, “General heads for a *Natural History of a Countrey, Great or small*,” *Philosophical Transactions* 1/11 (1665–1666): p. 186. Reprinted in *The Works of Robert Boyle*, vol. 5, pp. 508–11 (here p. 508).

Boyle introduces a further subdivision into four headings: the heavens, air, water, and earth. The “heavens” includes latitude and longitude, the length of the shortest and longest days, the climate, and stars visible from the territory. He closes, interestingly, with a reference to astrology: “What constellations ’tis said to be subject to? Whereunto may be added other Astrological matters, if they be thought worth mentioning.”⁸⁴ Boyle’s source here can be identified as Varenius and the account of *celestia*, which includes the distance from the equator and the pole (latitude and longitude), the “quantitas” of the longest and shortest days, and a more technical description of the rising and appearance of stars. Varenius closes with the zodiac and the particular sign that governs the country, although he personally regarded this as an empty notion [*vana*].⁸⁵

Boyle moves beyond Varenius in his discussion of the air, which entails information on temperature, the air’s “Sublety or Grossness,” and the presence or otherwise of Esurine salt; the weather; meteors; winds; and matters of health. “Water” includes such things as the sea, tides, and currents; rivers, lakes, ponds, springs; and minerals waters and their virtues. He also places fish under this heading, “their Store, Bigness, Goodness, Seasons, Haunts, Peculiarities of any kind, and the wayes of taking them, especially those that are not purely *Mechanical*.”⁸⁶ This formulation, I suspect, owes something to the Hartlib “Interrogatory” which asks, under “Fish,” “what kinds, what goodnesse; What strange fishes now and then are taken,” and under “Fishing” asks “What other ways used for the taking of fish, besides nets and angling.”⁸⁷

When he comes to the “earth,” Boyle makes some additional subdivisions, distinguishing between the earth itself and its inhabitants and productions, which fall under the further classification of external and internal. Physical description of the earth is relatively straightforward, although Boyle expresses an unusual interest in “fiery or smoaking Hills.” He also invites travelers to “guess at the Reason” for local variations in the needle, suggesting among the possibilities the existence of subterranean fires or nearby iron mines. He refers to the soil, what improvements have been made to it by the inhabitants, and “What hidden qualities the Soyl may have (as that of *Ireland*, against Venomous Beasts, &c.).”⁸⁸ Here he picks up on something mentioned in the Hartlib “Interrogatory.” Under “Poisons”

⁸⁴ Boyle, “General Heads,” p. 186; *Works*, vol. 5, p. 508.

⁸⁵ Boyle’s prior familiarity with Varenius appears in his *New Experiments Physico-Mechanicall, Touching the Spring of the Air* (London, 1660), p. 166, which refers to the “accurate Varenius” and recounts the effects of air and wind in the Azores from the *Geographia generalis*. For further references and quotations from Varenius, see p. 257 and pp. 358–9; *Works*, vol. 1, pp. 214, 248, 286; see also *Works*, vol. 8, pp. 139–40; and vol. 10, p. 275.

⁸⁶ Boyle, “General Heads,” p. 187; *Works*, vol. 5, p. 509.

⁸⁷ Hartlib, “Interrogatory,” p. S1r.

⁸⁸ Boyle, “General Heads,” p. 188; *Works*, vol. 5, pp. 509–10.

it calls for “Particular observations of the Antipathy of the Irish earth and Aire, against all poisonous creatures?”⁸⁹

Rather than creating a separate category of “Humana” as Varenius does, or following the format of Bacon’s “Historiae Hominis” in the *Parasceve*, Boyle places inhabitants under the heading of the earth. He proposes an investigation of both “*Natives* and *Strangers*, that have been long settled there,”⁹⁰ and their “Stature, Shape, Colour, Features, Strength, Agility, Beauty (or want of it) Complexions, Hair, Dyet, Inclinations, and Customs that seem not due to Education.”⁹¹ Boyle’s list coincides in part with Varenius’s first item under the “Humane” heading which cites stature, shape, color, lifespan, and meat and drink [*cibus, potus*]. But Varenius gives a more conventional list of topics for coverage (consistent with the topics enumerated in the *ars apodemica* tradition), such as marriage rites, language, government, religion, cities, and so forth. Boyle maintains a closer adherence to a method of natural history, separating custom from social inculcation and therefore treating it, prospectively, as illustrative of human nature. There is a subtle incorporation, in other words, in which human beings fall within the purview of natural history, with “custom” becoming one item in a list of identifiable “natural” traits.⁹² Boyle does not focus on the significance of this move, but simply continues with his list of topics which includes attention to women’s reproductiveness and experience of labor and the diseases incident to men and women.

The earth’s external productions come next, which include grasses, grains, herbs (both wild and garden variety), and flowers. The interest in fruit trees, timber trees, woods, coppices, and groves may reflect the considerable attention to such matters in the Hartlib “Interrogatory.” Boyle goes on to mention animals, birds of prey, poultry, cattle, and any animals “that are not common, or any thing, that is peculiar in those, that are so.”⁹³ Internal productions or “Concealments” range from minerals to metals, clays and earths of different kinds, and whatever quarries or mines the country has. Boyle would later supplement this list with much more elaborate inquiries for mines in a future number of the *Philosophical Transactions*.⁹⁴

⁸⁹ Hartlib, “Interrogatory,” p. T1v.

⁹⁰ Boyle’s interest in natives and strangers “long settled” in the country may perhaps speak to his Irish background, where the Gaelic population was joined by Anglo-Norman settlers in the twelfth century and a fresh influx of Protestant settlers in the sixteenth and seventeenth centuries.

⁹¹ Boyle, “General Heads,” p. 188; *Works*, vol. 5, p. 509.

⁹² See Daniel Carey, *Locke, Shaftesbury, and Hutcheson: Contesting Diversity in the Enlightenment and Beyond* (Cambridge: Cambridge University Press, 2006), chapter 1, for an examination of Locke’s development of these possibilities.

⁹³ Boyle, “General Heads,” p. 189; *Works*, vol. 5, p. 510.

⁹⁴ Robert Boyle, “Articles of Inquiries touching Mines,” *Philosophical Transactions* 1/19 (1665–1666): pp. 331–43; *Works*, vol. 5, pp. 529–40.

Boyle closes with a couple of very interesting suggestions for further exploration. The first expands the potential content of the investigation by introducing a new source in the form of “*Inquiries about Traditions* concerning all particular things, relating to that Country, as either peculiar to it, or at least, uncommon elsewhere.”⁹⁵ Boyle seems to express openness to exploring folk belief with this recommendation. Here he comes closer to an undercurrent of the Hartlib “Interrogatory” which makes mention, as we have seen, of such things as Irish wells and St. Patrick’s Purgatory. This is most evident in the Interrogatory’s entry for “Maccamboy”: “Whether there be such a thing at all, that this herb should purge the body merely by external touch, or whether it be a fable, what particular observations have been taken for or against it, the shape of the herb, and in what place it groweth?”⁹⁶ Bacon was much more emphatic in the *Parasceve* in eliminating what he called “Narrationes Superstitiosae” from the investigation, although he exempted “stories of prodigies, where the record seems reliable and likely.”⁹⁷

Boyle’s second suggestion also adds different sources to the mix by articulating a new technique of research. He states that inquiries should be devised which “require *Learning or Skill* in the Answerer.” Without providing any examples, he notes that such a tack would require “*Proposals* of ways, to enable men to give Answers to these more difficult inquiries.”⁹⁸ He anticipates accessing a whole territory of desirable information that depends on making discriminations between sources of testimony. This approach was unusual in making explicit what was either implied or overlooked in other sets of inquiries.

In assessing the Royal Society’s practice as a whole, we can see continuities between the instructions for travelers issued in the sixteenth century from different sources. Hakluyt’s practical concerns with natural resources, settlement, and commerce are complemented by the questions posed for specific destinations. At the same time, these inquiries follow Bacon’s method, not only by being framed as questions but also because their randomness discouraged a pre-ordering or pre-classification of observation. Bacon not only endorsed enquiries but also “titles” or heads of observation which we see employed by Boyle. The structure of his advice was also informed, as we have seen, by the *ars apodemica* and chorographic traditions running through Varenius. What is striking about Boyle’s “General Heads” is how easily the material could be presented in a tabular form. In this way, the information clearly relates to the tradition of travel advice associated with Zwinger and others who adopted the Ramist-inspired presentation of decision trees.

But it would be wrong to enforce too great a separation between these approaches which are, in fact, complementary. The “General Heads” closed with a promise from Oldenburg that Boyle would “shortly enlarge them with *Particular*

⁹⁵ Boyle, “General Heads,” p. 189; *Works*, vol. 5, p. 511.

⁹⁶ Hartlib, “Interrogatory,” p. S3v.

⁹⁷ Bacon, *Instauratio magna*, p. 459.

⁹⁸ Boyle, “General Heads,” p. 189; *Works*, vol. 5, p. 511.

and *Subordinate* ones.”⁹⁹ This may refer to his inquiries for mines or the sea that would later appear in the *Philosophical Transactions*.¹⁰⁰ In any case, the “General Heads” circulated along with the specific inquiries, and they were seen in tandem with one another.¹⁰¹ In broader terms, it is worth noting that for all the formalization of Zwinger’s tables, his method was much more empirical than Ramus’s and, as some scholars have suggested, contributed to Bacon’s re-conceptualization of knowledge and inquiry.¹⁰²

Natural history represented a particularly important occasion for travel, eliciting elaborate sets of instructions and directions guiding travelers in what to see and what to report. The alternative traditions that informed this body of work speak to enduring aspirations to reform knowledge and to introduce a stronger empirical dimension into the study of nature. It constitutes an especially important example of the more general effort to exert proper control over the activity of travel, to make it an intellectual resource and an asset to the state. The proliferation of lists of inquiries in the seventeenth and eighteenth centuries and beyond testifies to this protean legacy from the early modern period.

⁹⁹ Boyle, “General Heads,” p. 189; *Works*, vol. 5, p. 511.

¹⁰⁰ See reference in note 88, and “Other Inquiries concerning the Sea,” *Philosophical Transactions* 1/18 (1665–1666): pp. 315–16; and *Works*, vol. 5, pp. 527–8.

¹⁰¹ The brief “Inquiries for Persia” notes that “Other *Querries*, concerning the Air, Waters, Minerals, Vegetables, Animals, &c. peculiar to *Persia*, may be taken out of those *General Heads of Inquiries, for a Natural History of a Countrey*;” see *Philosophical Transactions* 2/23 (1666–1667): p. 420. The Inquiries for the “Ant-Iles, or Caribbe-Islands” adds that further inquiries for earths and minerals appear in Boyle’s advice on mines published in *Philosophical Transactions* 1/19, while those for the air, winds, and weather appear in the “General Heads,” *Philosophical Transactions* 3/33 (1668): p. 639.

¹⁰² See Ann Blair, “*Historia* in Zwinger’s *Theatrum humanae vitae*,” in Gianna Pomata and Nancy G. Siraisi (eds), *Historia: Empiricism and Erudition in Early Modern Europe* (Cambridge, Mass.: MIT Press, 2005), pp. 270, 289; Gilly, “Zwischen Erfahrung und Spekulation,” (1979): pp. 167–70; and Gilly, “Theodor Zwinger’s *Theatrum humanae vitae*,” p. 267.

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Chapter 3

Forming Knowledge: Natural Philosophy and English Travel Writing

Julia Schleck

In “Fantasies of ‘Race’ and ‘Gender’: Africa, *Othello* and Bringing to Light,” Patricia Parker quotes one of the many early modern complaints about the unreliability of travelers’s testimony:

The “multitude of Mandivels” that “wander abroad in this pamphetting age in the habite of sincere Historiographers,” relating “meere probabilities for true” cast doubt on all reported “ceremonies & customes used in certaine countries, which seeme so absurde, monstrous and prodigious, as they appeare utterly voide of credit.”¹

The rhetorical links between the “discovery” of new lands and similar “discovery” of regions of the female anatomy, the secrecy of these realms, the “monsters” each might conceal and the need for firsthand witnessing united human anatomy and travel in a common masculine fantasy of colonial gazing and possession. Parker, then, points out early modern doubts about the veracity of travel writers to highlight the growing need for “ocular proof” linguistically linking many realms of early modern knowledge. What Parker’s article does not address is the social process by which certain claims about foreign lands and foreign bodies “appeare utterly voide of credit” and how others are judged to be “true.”

Parker is by no means alone. Since the 1980s, there have many such excellent studies by historicist-influenced literary critics on the discursive connections between different realms of Renaissance knowledge-making.² However, almost all of these pieces remain, for their own reasons, settled in the metaphorical.

¹ Edward Aston, “To the Friendly Reader,” in *The Manners, Lawes and Customes of all the Nations* (1610) as quoted in Parker, “Fantasies of ‘Race’ and ‘Gender’: Africa, *Othello* and Bringing to Light,” in Margo Hendricks and Patricia Parker (ed.), *Women, “Race,” and Writing in the Early Modern Period* (London: Routledge, 1994), p. 90.

² See, for example, Jonathan P.A. Sell, *Rhetoric and Wonder in English Travel Writing, 1560–1613* (Aldershot, UK: Ashgate, 2006); Mary Baine Campbell, *Wonder and Science: Imagining Worlds in Early Modern Europe* (Ithaca: Cornell University Press, 1999); and Stephen Greenblatt, *Marvellous Possessions: The Wonder of the New World* (Chicago: University of Chicago Press, 1991).

The authors discuss tropes and rhetorical linkages, but they do not consider the social or practical problems posed by the process of knowledge-creation in the early modern period. They often neglect the fact that travel texts were written by authors who occupied varying places in the English social order, their differing purposes, and that they were read with a careful eye to the status of the author and his goals in presenting his knowledge of foreign places.³

This article will provide an important supplement in literary criticism on the connections between travel and natural philosophy, focusing squarely on the social, epistemological, and narrative problem of establishing reliable knowledge of the world in early modern English society. It will seek to integrate into the discussion of English “travel knowledge” insights gained from social as well as intellectual history. This article takes the aristocratic and mercantile visions of travel and nation, so compellingly detailed by Richard Helgerson, and, rather than detailing the contradictions these ideologies embed in an individual text or compilation like Richard Hakluyt’s, considers the accounts of courtiers and merchants within the communities that produced and received them.⁴

Some of the most influential histories of early modern knowledge production have come from historians of science, who seek to explain the dramatic shifts in the construction of natural philosophic knowledge across the seventeenth century and tell the history of new scientific institutions like the Royal Society. Most notably, Steven Shapin and Simon Schaffer have argued that knowledge claims in the newly formed Society were secured and a means of peaceably producing generally accepted knowledge about the natural world established through the importation of codes of gentlemanly conduct into scientific debate.

Barbara Shapiro’s account of the witnessing standards in law courts and the ways in which the concept of the “fact” develops in the legal domain and spreads to other areas of early modern knowledge production across the seventeenth century has displayed the fruitful connections to be made across multiple knowledge “disciplines,” including natural philosophy and travel. Lorraine Daston has published work exploring how natural philosophers sought to temper potentially acrimonious debate through envisioning and deploying forms that would eventually come to be the trademarks of an “objective” and “fact-based” discipline. Although there are important methodological and substantive differences between these

³ I use this term advisedly here, for although the vast majority of travel in this period, and surviving accounts of travel, was completed by men, Bernadette Andrea has recently brought to light the accounts of some of female travelers, providing an important corrective to the field and highlighting that, while rare, female travelers and accounts of their travels do exist. See Andrea’s, *Women and Islam in Early Modern English Literature* (Cambridge: Cambridge University Press, 2007).

⁴ I am concerned primarily here with the roles these two distinct modes of international engagement and domestic reportage played in the production of “knowledge” about foreign lands and the social processes used to regulate that knowledge. See Richard Helgerson, *Forms of Nationhood: The Elizabethan Writing of England* (Chicago: University of Chicago Press, 1992), pp. 149–91.

intellectual and social historians, their work has collectively opened up for study a wide array of early modern knowledge regimes, including those linked to the long-distance ocean voyages which quickly became an established part of England's economy in the seventeenth century.

Early seventeenth-century knowledge about foreign lands and peoples was uncharted, and the forms of reporting as unsettled as those in early modern natural philosophy. Shapin and Schaffer's contention that the social hierarchy played a crucial role in how truth claims were made and determined is a useful starting point when examining the ways in which travel knowledge was generated in the period. Yet in the realm of travel knowledge, the physical conditions of voyaging and social milieu in which such claims were articulated made for a different outcome in terms of whose accounts were ultimately accepted as truth. As critical as the social hierarchy was, it did not always determine the form in which truth claims were made, nor the ultimate allocation of credit to a particular tale. "Every man [may not have been] a proper Champion for Truth, nor fit to take up the Gauntlet in the cause of Verity," as Thomas Brown proclaimed, and Shapin contends.⁵ But sometimes the men judged to be proper champions of truth were not from the estate that traditionally wore the gauntlet. The social history of truth produced by travelers is rather more complex and dynamic.

Making Knowledge Claims

Although now a standard citation in many social histories, Shapin's most extensive treatment of this topic, *A Social History of Truth*, is largely absent from literary critical bibliographies, as are the writings of other historians working in this area. Thus parallels between knowledge creation in natural philosophy and in travel are often missed. Most useful for the study of travel are the ways in which witnesses are assigned varying levels of credit and the institutionalization of the form of reporting observed details.

Shapin's argument begins with the assertion that truth claims are always rhetorical in that they need to gain assent from a particular community to achieve the status of accepted knowledge. One of the primary ways in which such claims were buttressed in early modern England, both in travel writing and by early practitioners of empirically based natural philosophy, was through witness testimony. Just as witness testimony in a courtroom assisted juries to determine "the facts of the matter" in a legal dispute, so the verbal support of eye-witnesses was essential in distinguishing "true facts" in both scientific forums and those establishing the truth about foreign lands.⁶ Witnesses were particularly important

⁵ Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: University of Chicago Press, 1994), p. 42.

⁶ For the function of early modern juries in relation to "matters of fact" as distinguished from "matters of law," see the first chapter of Barbara Shapiro, *A Culture of Fact: England 1550–1720* (Ithaca: Cornell University Press, 2000); for the epistemological

in the realm of long-distance travel since information about voyages and far-off destinations was especially sparse in sixteenth and early seventeenth-century England. The most complete descriptions of distant locales came primarily from religiously suspect Spanish and Portuguese sources.

This posed a problem in Protestant England since witnesses must be trustworthy to be useful in the process of knowledge creation. Nationality, sect, gender, and social status all came into play when making such a determination. As Barbara Shapiro notes in her study of early modern witnessing standards in the courtroom, when juries evaluated witness testimony

[t]he credibility of witnesses was related to social and economic status as well as to the opportunity to observe first hand the fact in question. Thus the testimony of nobles counted for more than that of commoners, ecclesiastics for more than that of laypersons, men more than women, and Christians more than Jews.⁷

Thus this process of determining “trustworthy agents” was not simply a matter of identifying those of good moral character; perceived witness credibility was profoundly inflected by the social hierarchies which marked early modern England. Shapin stresses the link between gentle birth and credibility: in the early modern period, only gentlemen were proper guarantors of truth.

In the realm of empirical experimentation, social status could even trump firsthand experience, as when Robert Boyle rejected the claims of divers whose testimony contradicted his theories of water pressure, insisting that his own experiments with inanimate objects should carry more weight than

the suspicious, and sometimes disagreeing accounts of ignorant divers, whom prejudicte opinions may much sway, and whose very sensations, as those of other vulgar men, may be influenced by predispositions, and so many other circumstances, that they may easily give occasion to mistakes.⁸

As in law and natural philosophy, in the arena of travel the assessment of truth claims was heavily dependent on an evaluation of the credibility of the

status of “dubious,” “uncertain,” and “false” facts, see Shapiro, *A Culture of Fact*, p. 45. There are important methodological differences between Shapiro and Shapin’s work, but in this discussion, I will be focusing on some basic points where their work on early modern knowledge production coincides.

⁷ Barbara Shapiro, “*Beyond Reasonable Doubt*” and “*Probable Cause*”: *Historical Perspectives on the Anglo-American Law of Evidence* (Berkeley: University of California Press, 1991), p. 188. Shapiro uses “fact” here in its most common early modern definition, as a (usually criminal) deed, something done.

⁸ Robert Boyle, from his “*Hydrostatical Discourse*,” as quoted in Shapin, *A Social History of Truth*, p. 265. See Shapin’s discussion of this incident (pp. 260–66) for a fuller account of Boyle’s strategy here.

travelers themselves.⁹ But as I will argue, those whose social credit was the highest did not necessarily receive the greatest trust for their professions of knowledge about distant places and cultures. The conditions of production and reception of such travel knowledge by gentlemen hoping to gain credit at court could in some cases make high status a liability for a traveler seeking credence from his peers—or a ruler seeking actionable information about foreign lands from these high-status travelers.

It therefore becomes incumbent upon the critic seeking to analyze the role a given travel narrative or group of narratives played in the development of English knowledge of foreign lands and peoples to study the author's social position, choice of narrative form, and intended audience, as well as to perform a close reading on the text itself. Travel writings, like early modern natural philosophical texts, occupy the important position of creating the knowledge base upon which decisions in multiple areas of social and political action rest. If scholars are fully to grasp the nature of the relationship between early modern travel narratives and England's imperial aggression in subsequent centuries, if we are to understand these texts's role "in and as social practice," then we must "subject [them] to a formal analysis that is also a thoroughly historicized analysis of their social origins and functions."¹⁰

Such an analysis is further complicated by the unsettled nature of the written forms in which truth claims were made, both in natural philosophy and in travel. In the case of travel, social relations between author and audience were not only affected by their respective determinations to boost and to evaluate the author's credibility, they were also conducted to a large extent through the written medium of the travel narrative, whose form exerted pressure on the shape of the knowledge imparted. Most early modern travelers across the globe lacked an accepted customary form in which to express their experiences. Although there were common rhetorical structures and devices for establishing a trustworthy authorial *ethos*, on the whole, the author of each piece attempted to guarantee its credibility in the manner perceived best keyed to its intended audience.

According Shapin, Schaffer, and Daston, establishing a regularized form for making natural philosophic claims in a way that would not cause undue conflict was a problem that occupied many of the major figures in early modern natural philosophy as well. Achieving any sort of agreement on the specific workings of the natural world was a difficult process and fraught with contention. Frances Bacon

⁹ The most comprehensive study on the interconnections between witnessing in the juridical realm and witnessing in travel writing is by Andrea Frisch; the quality of her work makes it required reading on this topic. See Frisch's, *The Invention of the Eyewitness: Witnessing and Testimony in Early Modern France* (Chapel Hill: University of North Carolina Department of Romance Languages, 2004).

¹⁰ Stephen Cohen, "Between Form and Culture: New Historicism and the Promise of a Historical Formalism," in Mark David Rasmussen (ed.), *Renaissance Literature and its Formal Engagements* (New York: Palgrave, 2002), p. 23.

had sought to discipline language into small self-contained bits of information geared towards gaining assent through their very brevity. As Daston asserts, these short assertions about what had happened—the “facts” of the case—“came to the fore when a sharp distinction between particulars and explanations was at issue, especially in controversies over the correct interpretation of observations and experiments.”¹¹ Shifting the form of expression, whether written or verbal, was important to the establishment of agreement.

According to Shapin, the foundational members of the Royal Society, all noble practitioners of natural philosophy, made a similar adjustment in the mode of expression, mapping gentlemanly rules of decorum onto “scientific” speech: “[c]ivil conversation demanded that claims be made in the due forms of *imprecision*, presented with modesty, argued with circumspection, and proffered with due allowance for natural variation in men’s wits and interests. That way lay both cognitive and civil order.”¹² The institutionalization of natural philosophic knowledge within the community of the Royal Society was thus accompanied by a disciplining of speech and writing so that assent could be reached and knowledge created with a minimum of conflict. Stabilizing the formal features of scientific knowledge helped to stabilize the formation of the knowledge itself.

Although it may seem that early modern travelers lacked a similar institution to aid in the regularization of reporting travel, I will argue that a similar dynamic was at work in an equally powerful set of corporate bodies: long-distance trading companies. Companies insisted on the inclusion of particular kinds information in reports sent from their agents abroad and required them to be communicated in an increasingly standard form. In comparison to the vagaries of individual gentleman travelers, seeking to secure or raise their positions in the ever-shifting status hierarchy, the collective credit of the trading company provided an increasingly viable alternative source of credible information.

A closer examination of accounts by both gentlemen and merchant travelers will highlight the ways in which examining travel narratives with an eye towards witness credit can shed light on their reception and role in early modern knowledge production. Attending to the regularization of form in certain of these accounts will show how the disciplining of lower-status company agents could sometimes provide more trustworthy information in the eyes of contemporaries than those born to be champions of truth.

¹¹ Daston, Lorraine, “Why Are Facts Short?” *Max-Planck-Institut für Wissenschaftsgeschichte* Preprint 174: *A History of Facts*, pp. 12, 13. Published in Italian translation as Lorraine Daston, “Perché i fatti sono brevi?” *Quaderni Storici* 108.3 (2001): pp. 745–70. See also, as cited in Daston, Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985), pp. 25–30; also, Lorraine Daston, “Baconian Facts, Academic Civility, and the Prehistory of Objectivity,” in Allan Megill (ed.), *Rethinking Objectivity* (Durham: Duke University Press, 1994), pp. 37–64.

¹² Shapin, *A Social History of Truth*, p. 118.

Courtly Knowledge Claims

Gentlemen travelers in the Elizabethan and Jacobean periods undertook long sea voyages for a variety of reasons.¹³ One of their most prominent goals in traveling was to increase or restore financial and social credit through militaristic or piratical expeditions. Successful voyages could enrich coffers through a combination of plunder, indirect trade, and the rewards which would come from increased status at court through the favor of the monarch. The regime of conspicuous consumption—the relentless requirement to display one's wealth through visible luxury items and gatherings—meant that many noble houses, with only the rents generated by their lands as income, struggled to maintain their position at court.¹⁴ Voyaging offered an opportunity to supplement that income in an honorable way. It also offered an alternative field in which to display the aristocratic attributes of courage and prowess in martial situations and honor in all actions.

The conflict between Spain and England during the last few decades of Elizabeth I's rule gave the nobility several possibilities outside the court to increase their status. Many participated in the war in the Netherlands, while others outfitted fleets designed to attack Spanish treasure ships, colonies, or even mainland Spain. Conversely, the peaceful reign of James I offered few outlets apart from court for gentlemen to display their prowess, save traveling. Overseas adventuring, exploring, and privateering offered the intrepid gentleman or aspiring knight a chance at glory and greater wealth. The accounts which were written of such journeys were composed with an eye firmly fixed on increasing credit at court, financially and socially, and should be read within that context.¹⁵ Francis Drake, a

¹³ I am using Lawrence Stone's definition of the gentle classes: "the upper classes, which comprised the top 2 per cent or so of the population, divided into three broad groups roughly defined by rank. The first were plain gentlemen, mostly small landed proprietors but also in part professional men, civil servants, lawyers, higher clergy, and university dons. Above them were the county *élite*—many of the esquires and nearly all the knights and baronets ... Finally at the top there were the 60 to 120 members of the titular peerage." See *Crisis of the Aristocracy, 1558–1641* (Oxford: Clarendon Press, 1965), pp. 51–2.

¹⁴ George Clifford, the third earl of Cumberland, used traveling and specifically privateering voyages to regain financial losses largely incurred through gambling. Following his father's economic and political fall, Sir Thomas Sherley the younger attempted multiple privateering voyages in an effort to recover the family fortunes. For a full exploration of the interaction of status and wealth in the early modern European court, including the imperative of conspicuous consumption, see Norbert Elias's sociological study *The Court Society*, trans. Edmund Jephcott (Oxford: Basil Blackwell, 1983).

¹⁵ This is not to say that authors did not receive some money from publishing their accounts; however, profits from this would be negligible in comparison to the rewards held out by rising at court. More useful, especially for those in the lowest ranks of the peerage or for younger sons aspiring to knighthood and preferment, would be the credit gained with local shop owners. This extension of buying power was practically helpful and would allow the gentleman to live up to (or beyond) his rank.

commoner knighted by Elizabeth for his successful travels and habit of capturing wealthy prizes from the Spanish, wrote to encourage aspiring young gentlemen:

Who seekes, by worthie deedes, to gaine renowne for hire:
 Whose hart, whose head, whose purse is prest, to purchase his desire;
 If anie such there bee, that thirsteth after Fame:
 Lo, heere a meane, to winne himselfe an everlasting name.
 Who seekes, by gaine and wealth, t'advaunce his house and blood:
 Whose care is great, whose toile no lesse, whose hope, is all for good
 If anie one there bee, that covettes such a trade:
 Lo, heere the plot for common wealth, and private gaine is made.¹⁶

This strategy came with significant risk. George Clifford, second earl of Cumberland, sponsored many privateering voyages in an effort to gain fame and repair his fortunes, which frequently sagged due to his penchant for gambling. Although Cumberland took part in several extremely successful expeditions, which brought him both wealth and reputation at court, he also suffered many setbacks, and it is impossible to say whether he ultimately made or lost more from his involvement in overseas travel.

Sir Walter Raleigh's voyage to Guiana famously demonstrated the spectacular losses that could result from traveling. In 1595, Raleigh set off from England in what proved to be a vain attempt to restore his reputation after an infelicitous marriage resulted in his dismissal in high disgrace from Elizabeth's court. In his account of the voyage, Raleigh later claimed he could think of no better way to regain his credit than undertaking this arduous journey:

I did therefore even in the winter of my life, undertake these travals, fitter for bodies lesse blasted with mis-fortunes, for men of greater abilitie, and for mindes of better incouragement, that thereby if it were possible I might recover but the moderation of excesse, and the least tast of the greatest plentie formerly possessed. If I had knownen other way to win, if I had imagined how greater adventures might have regained, if I coulde conceive what farther meanes I might yet use, but even to appease so powerefull displeasure, I would not doubt but for one yeare more to hold fast my soule in my teeth, til it were performed.¹⁷

Unfortunately for Raleigh, although the expedition sailed quite far up the Orinoco River in search of El Dorado, the famed city of gold, both the city and its gold remained elusive. Upon his return from Guiana empty-handed, Raleigh was scorned and mocked at court, prompting him to compose a justification of his

¹⁶ Francis Drake, "Sir Frances Drake, Knight, in commendation of this Treatise," a commendatory poem to Sir George Peckham's, *A True Reporte, Of the late discoueries, and possession, taken in the right of the Crowne of Englande, of the New-found Landes* (London, 1583).

¹⁷ Walter Raleigh, *The Discouerie of the Large, Rich, and Bevytiful Empire of Guiana* (London: Robert Robinson, 1596), pp. A2v–A3r.

travels, *The Discoverie of the Large, Rich, and Bewtiful Empire of Guiana* (1596). Raleigh sought to mend through narrative a reputation that he had hoped to restore through South American gold, offering two of his chief investors and backers at court, Robert Cecil and Charles Howard, an account of his efforts in South America, like a “wastfull factor” who after having “consumed such stockes as [he] had in trust … yeelde[d] some cullor for the same in [his] account.”¹⁸

The failure of Raleigh’s account to restore his credit in the absence of raw bullion highlights the tight link between financial and social credit and the risks involved in seeking credit through travel. Such voyages were expensive and often involved numerous investors, who literally banked on the prowess of the traveler to bring them a return on their investment. The leaders of unsuccessful expeditions suffered serious losses of credit, both financially and socially, making it less likely that others would extend them or their proposals belief or funds. Furthermore, almost every member of court had enemies and was subject to the general malice brought about by envy. Even as they sought investors, proposed expeditions were undermined, and unsuccessful or indeterminate voyages were subject to witty derision on the part of those who wished ill to the unhappy traveler. Raleigh’s account notes those who claimed he never went to Guiana, but was instead “hidden in cornwell, or elsewhere,” insisting that

they have grossly belied me, that forejudged that I would rather become a servant to the Spanish king, then return, & the rest were much mistaken, who woulde have perswaded, that I was too easeful & sensuall to undertake a journey of so great travel.¹⁹

These claims, along with much other “malicious slander” had been whispered at court and throughout the city of London. Although no one could openly and directly question the veracity of the events reported without receiving a challenge from the traveler for giving them the lie, those hostile to that traveler could and did seek to undermine or mitigate the impact of such claims at court to protect their own position there.²⁰ This produced an unstable system of knowledge-creation that was problematic for a ruler seeking reliable information about the nature of foreign lands and peoples. The knowledge produced by courtier-travelers was useful insofar as it was conveyed by persons the ruler knew and could personally evaluate, but insofar as it was caught up in the vagaries of court politics, it could create as many problems as it solved.

¹⁸ Ibid., p. A2r. For an extended analysis of the compensatory nature of Raleigh’s text, see Mary Fuller, *Voyages in Print: English Travels to America, 1576–1624* (Cambridge: Cambridge University Press, 1995), chapter 2. See also Joyce Lorimer’s introduction to her edition of Raleigh’s text, *Sir Walter Raleigh’s Discoverie of Guiana* (London: Ashgate, 2006), and Louis Montrose, “The Work of Gender in the Discourse of Discovery,” in Stephen Greenblatt (ed.), *New World Encounters* (Berkeley: University of California Press, 1993), pp. 177–217.

¹⁹ Raleigh, *The Discoverie of the Large, Rich, and Bewtiful Empire of Guiana*, p. A3r.

²⁰ Ibid., “To the Reader,” p. A6r–A8v (marked 2r–4v).

While some nobility risked traveling personally on these voyages in the hopes of significant gain in status, they also served as patrons for lesser nobles seeking similar opportunities to improve their social status and credit.²¹ The nobility financed a hodge-podge of small military expeditions, exploratory voyages and settlements, and intelligence gathering, all of which were expected to pay dividends for the patron in terms of courtly power and influence. Their agents could expect similar gains of status and continued employment abroad. The written reports to emerge from this motley collection of foreign actions on the part of the lesser nobility were rarely published—and only then if the voyage was successful, in which case such texts were dedicated to the patron and explicitly designed to boost their reputation, not only within the court, but also with the general reading public. A few of these published narratives were designed to enhance the reputations of minor nobles who sought employment and thus helped to drum up patronage possibilities by creating public approbation and wonder at past foreign exploits.

The narrative of Sir Anthony Sherley is an interesting example of this latter type of travel narrative. In 1599, Sherley was sent by the Earl of Essex to intervene in the succession battle over the Italian principality of Ferrara. By the time Sherley arrived, the matter was settled firmly in favor of the Vatican, so Sherley rerouted to Venice to decide upon a new employment for Essex's men and funds. He settled on a voyage to Persia, to effect an alliance between that nation and the princes of Christendom for the purposes of trade and military opposition to the powerful Ottoman Empire. By the time Sherley returned to England, Essex had fallen from grace and Elizabeth refused Sherley entry to the country since he had neglected to obtain her leave in departing from it. The voyage was of no use to Essex and of dubious use to Sherley. After Elizabeth's death, however, Sherley composed a lengthy account of his journey and published it in England in an attempt to use his relative favor with James to raise his depressed fortunes and those of the Sherley family. The account, *Sir Antony Sherley his relation of his trauels into Persia* (1613), trumpets his courtly and diplomatic skill, praising him for being "high spirited" and "experienced and versed in great affairs" in its opening letter to readers.²²

²¹ Many early English voyages to the Americas attracted significant investment from court nobility, as well as from the Queen herself. Francis Walsingham, Henry Howard, earl of Northampton, Thomas Howard, earl of Arundel, Robert Dudley, earl of Leicester, Robert Devereux, second earl of Essex, George Clifford, third earl of Cumberland, Sir Christopher Hatton, and Sir Walter Raleigh were among the many who provided financial backing for voyages by Frobisher, Drake, Gilbert, and others. For a detailed discussion of the patterns of noble and merchant investments in early overseas ventures, including a list of all individual investors from 1575–1630, see Theodore K. Rabb, *Enterprise and Empire: Merchant and Gentry Investment in the Expansion of England, 1575–1630* (Cambridge, MA: Harvard University Press, 1967).

²² Anthony Sherley, *Sir Antony Sherley his Relation of his Travels into Persia* (London, 1613), A4r. For an extended discussion of the context of production and reception

As with both Sherley's narrative and that of his man, William Parry, the episodes which command the most narrative space in many works describing gentlemen travelers are those which display the Englishman interacting with foreigners in either a martial or a courtly diplomatic context. Both situations are generally geared to display the traveler's leadership skills physically, morally, and/or rhetorically. Considerable space is dedicated to detailed descriptions of conversations or social scenarios that occasionally became embedded in drama, with the remarks of each interlocutor reported in direct speech rather than summarized by the first- or third-person English narrator. As in the account of Sherley's brother Thomas, which reports at length conversations held between Sherley and his Turkish captors or Sherley and a "certaine Jewe" during his imprisonment by the Ottomans, extensive scenes of early modern cross-cultural contact are often depicted in accounts of gentlemen travelers.²³ And while some foreigners are mere caricatures meant to serve as foils or props for the Englishman's heroism, the desire for detail and polished rhetorical style (owing to the heavy scrutiny such tales would receive by a court audience) often produced scenes where foreigners are drawn with a fine brush stroke and allowed to express skepticism and opposition as well as approbation of the English. Because foreigners are given space to speak—even though that speech is heavily mediated through translators and the author himself—the heteroglossia of the text is heightened, and this complicates the stance readers were able to take towards the figures in the narrative, both English and foreign.²⁴

Anthony Sherley, for example, dedicates 23 pages of his story to a single interview with the Persian Shah, Abbas I, in which he attempts to persuade the Shah to ally with the princes of Christendom against their common Turkish enemy. He is opposed by several powerful members of the Shah's court, who argue that Sherley is an untrustworthy foreigner, but despite the many objections raised to the plan by these ministers, the Shah ultimately adopts Sherley's plan and dispatches him as ambassador from Persia to several Christian nations in Europe. Sherley displays the diplomatic prowess which produced this result through detailed accounts of his interviews with the Shah and by italicizing the many proverbs and maxims that Sherley sees exemplified in this Persian courtly setting. When maneuvering through the dangerous waters of the foreign court, he takes care to highlight his thoughtful proceedings, simultaneously generalizing the court environment, making sure he appears ready for service in other courtly settings:

of Sherley's text and several of the other Sherley accounts, see chapter 2 of Julia Scheck's *Telling True Tales of Islamic Lands: Forms of Mediation in English Travel Writing, 1575–1630* (Selinsgrove, PA: Susquehanna University Press, 2011).

²³ Anthony Nixon, *The Travels of Three English Brothers 1. Sir Thomas Sherley. 2. Sir Anthony Sherley. 3. M. Robert Sherley. With Sir Thomas Sherley his returne into England this present yeare 1607* (London: 1607), D2r–F4r.

²⁴ For the concept of heteroglossia in prose narration, see Michael Bakhtin, "Discourse in the Novel [1934]," in Dorothy Hale (ed.), *The Novel: An Anthology of Criticism and Theory, 1900–2000* (Malden, MA: Blackwell, 2006), pp. 481–510.

... I knew, that in handling with Princes especiall affaires, of such momentuall importance, I ought not so much to repose my selfe upon the good, and just property of my proposition, as in the direct knowledge of the nature of the Prince; who either might grow jealous of the hazard, or having his ambitions turned to other ends, might mistake, or not regard my advertisements. Both which would have beene the ruine of what I intended: *A businesse hardly rising againe, and recovering grace, which hath beene once foiled.* Therefore I tooke time to deeme by the proceeding of other deliberations, of the way which I should take ...²⁵

Modest, careful, and clever in his dealings at court, Sherley paints himself as the ideal diplomat, courtier, and intelligencer in an effort to parlay his experiences in Persia into new employment in England some ten years later. In the event, he was not successful, having already lost considerable credit in his home country, and James and his court largely ignored his purported knowledge of the land and people of Persia.²⁶

In sum, although produced by the most credible strata of English society, knowledge claims made by gentleman travelers could be highly problematic in terms of their reception and therefore of dubious value in producing accepted knowledge of foreign lands. The function such accounts could play in terms of raising one's status in an atmosphere of intense competition heightened the contested nature of claims and at times rendered them more factional than national tools. Being a gentleman was not always an advantage when it came to telling "true" tales of foreign lands.

Trading in Knowledge

Conversely, given the right associations, being a commoner was not always as disadvantageous as it might seem when making such claims. Trading companies made significant contributions to England's knowledge of foreign lands, information that was recorded by company agents and factors when abroad. In terms of sheer volume, the reports composed by company merchants and factors far outweighed any other form of travel relation.²⁷ These authors wrote for an

²⁵ Sherley, *Relation of his Trauels into Persia*, p. 73.

²⁶ There is evidence that Sherley worked as an intelligencer for James both before and after his ascension to the English throne; however, by the time Sherley published his account, this association had probably long since ceased. See D.W. Davies, *Elizabethans Errant: The Strange Fortunes of Sir Thomas Sherley and His Three Sons, as Well in the Dutch Wars as in Muscovy, Morocco, Persia, Spain, and the Indies* (Ithaca: Cornell University Press, 1967).

²⁷ As Richmond Barbour recently noted, the amount of extant documentation from some of the merchant companies is simply staggering: "The East India Company managed a system of corporate discourse long before it ever thought to hold an empire, and it accumulated considerable acreage of text. At the British Library's India Office today, East India Company material occupies 9 miles of shelving." See Barbour's, *Before Orientalism: London's Theatre of the East, 1576–1626* (Cambridge: Cambridge University Press, 2003), pp. 7–8.

especially circumscribed audience and for a particular purpose: to account for the movement of company goods across a foreign landscape and for the sale of company goods in the foreign markets. The narratives were composed for the masters of the company and were not written with an eye towards publication. As such, they spent a great percentage of their narrative space on the technical details of travel, such as speed, currents, weather, geographical landmarks, prices of good and exchange rates, and other matters related to the physical progress of the journey and the economic conditions at each location along the way. Company agents were instructed to record these details to assist the masters in their calculations regarding future trading voyages.²⁸

The extent of narrative space spent on such matters often made for a choppy read, one that gave readers little plot or character development. With the exception of an occasional storm or fear of bandits along the road, such accounts make for dry reading indeed:

The carseis were good and well sorted, they are and wil be solde form 150. Shaughs to 160. the piece. Two hundred pieces were solde under, that needed not: one 100. pieces at 146. and 147. the piece: but more would have bene given, if circumspection had bene used ... Here is at this time bought for England, 11. packes of rawe silke, 25. and 26. batmans being in every packe: the batman being 7 li. which may be 6. li. and a halfe of English waight: being bought here for 66. or 70. shaughes the batman ...²⁹

To the twentieth-century reader, such details call up the epistemologically laden word “fact,” which can make such merchants accounts seem more honest and reliable than the more rhetorically elaborate (read “literary” or “fictional”) accounts of many noblemen. However, this is an anachronistic assessment of these accounts, not least because the concept of the “fact,” as it is currently understood, did not yet exist in English society.³⁰ Such details should be seen as just that: briefly stated bits of information of a particular sort (navigational, economic),

²⁸ For more details on the regularization of notes taken during travel for the sake of later reading by masters in London, especially in relation to the ship’s log, see Fuller, *Voyages in Print*, pp. 1–15; Richmond Barbour, *The Third Voyage Journals: Writing and Performance in the London East India Company, 1607–1610* (New York: Palgrave Macmillan, 2009), pp. 18–23; and Miles Ogborn, *Indian Ink. Script and Print in the Making of the English East India Company* (Chicago: Chicago University Press, 2007). Several examples of instructions given to merchant travelers on what to record can be found in Richard Hakluyt’s collection of voyages and other travel documents, *The Principall Navigations, Voiages and Discoueries of the English nation* (London: By George Bishop and Ralph Newberie, deputies to Christopher Barker, printer to the Queenes most excellent Maiestie, 1589), pp. 458–63.

²⁹ Hakluyt, *The Principall Navigations*, p. 378.

³⁰ For a discussion of early modern “facts,” see Julia Schleck, “‘Plain Broad Narratives of Substantial Facts’: Credibility, Narrative, and Hakluyt’s *Principall Navigations*,” *Renaissance Quarterly* 59/3 (2006): pp. 768–94. Jonathan Sell observes that modern readers tend to “overlook or misunderstand the extent to which [travel] texts are rhetorical, that is to

which the authors felt no compunction to tie together through extensive plot and character development.

As their primary goal was recording the movement and sale of goods, the authors of company travel reports were also far less concerned than their gentlemanly counterparts with demonstrating social skill in dealing with foreigners. The desired skill portrayed in these accounts is market success: did the author make a profit for the company through this voyage and how? (And if not, why not?) The few times that such narratives depict Anglo-foreign interactions in any depth are during interviews with local rulers conducted for the purpose of getting special trading permissions or safe conducts. But since these permissions were usually only needed once per land/per ruler, they are an infrequent part of such reports at best. When they are recorded, they tend to be less extensive than gentlemen's accounts of similar scenarios, and they understate rather than highlight the author's social performance in the courtly setting.

Where an aspiring courtier like Anthony Sherley might spill 23 pages worth of ink on his negotiations with a foreign king, Anthony Jenkinson, the first English merchant to journey to Persia, generally summarizes his royal interviews in less than one page, highlighting his respectable conduct and the positive outcome of his interviews rather than his prowess as a courtier. For example, Jenkinson recounts conversation at the dinner he shared with "King Obdolowcan" (Abdullah Khan) in 20 lines, noting mainly that

The king said unto me Quoshe quelde, that is to say, welcome: and called for a cup of water to be drawen at a fountaine, and tasting thereof, did deliver me the rest, demanding how I did like the same, and whether there were so good in our countrey or not: unto whom I answered in such sort, that he was therewith contented: then he proponed unto me sundry questions, both touching religious and also the state of our countryes, and further questioned whether the Emperour of Almaine, the Emperour of Russia, or the great Turke, were of most power, with many other things too long heere to rehearse [sic], to whom I answered as I thought most meet.³¹

The only one of his replies Jenkinson saw fit to print in more detail was his response to the question of his mission in that land; he proclaimed the goals of the Queen and the company to establish regular trade with the merchants in the area, "to the honor and wealth of both realmes, and commoditie of both theyr subiects, with divers other words, which I omit to rehearse."³²

Merchant accounts rarely display the rhetorical skills of the traveler, but they always note the results of each agent's negotiations, often including the various nonverbal ways in which royal favor was displayed. Jenkinson's trip was especially

say, written in accordance with discursive practices and epistemological expectations that are unfamiliar to us today." See Sell, *Rhetoric and Wonder*, p. 2.

³¹ Hakluyt, *The Principall Navigations*, p. 367.

³² Ibid., pp. 367–8.

fruitful in such pregnant gestures. After some initial misunderstandings in Russia, he was invited to dine with the Russian Tsar Ivan IV and received “a cuppe of drinke at his Majesties hands.” Abdullah Khan invited him to go hawking with his courtiers, bestowed rich clothes and a horse upon him and had him sit nearby at meals.³³ These actions were important to record, as they indicated the likelihood of the company’s terms being accepted, and they gave subsequent company agents a guide when judging the favor in which the Englishmen stood with foreign rulers. Company agents could follow upon one another’s heels, seeking the fulfillment of the privileges given to their predecessors and the granting of further rights as well as the financial success of their particular voyage. Their achievements at foreign courts, then, were ultimately cumulative and collective. Any financial rewards that resulted from this intrepid traveling were collected by the company as a whole and distributed to its members according to company statute. A good voyage could bring a rise in status for the traveler within the company, which could ultimately lead to wealth, but all such social movement took place within the structures of the trade.

In short, trade company narratives reflected the functions such travel accounts were designed to accomplish; they were composed for company masters back in London, and they fulfilled the expectations and desires of their audience, who, after all, were interested in foreign lands, primarily—if not solely—for collective economic reasons. The extensive dialogues featured in gentlemanly accounts written to highlight the rhetorical prowess of the author were irrelevant in this alternate social context.

The knowledge claims made by merchants in their accounts occupied a markedly strong position in terms of credibility. Although gentlemen ranked higher in society than commoners and the wealthy traders, the dissociation of social status with wealth meant that the two groups were increasingly intermarrying as merchant wealth propped up failing noble lines and merchant families moved into the noble estate.³⁴ These rich merchants were not only creditworthy themselves, they extended credit to others. This slippage between financial and social credit in determining the worth of an individual meant that narratives emerging from travelers under the auspices of lucrative organizations like the Muscovy or Levant Companies could sometimes be valued more highly by those seeking to evaluate the credit of the author than those penned by gentlemen with less access to wealth.³⁵

³³ Ibid., p. 366.

³⁴ Stone, *Crisis of the Aristocracy*, pp. 21–64, 129–98.

³⁵ For a discussion of the interrelation between personal and financial credit, see Craig Muldrew, “Interpreting the Market: The Ethics of Credit and Community Relations in Early Modern England,” *Social History* 18/2 (May, 1993): 163–83. For further discussion on the functioning of instruments of credit in early modern society see Fernand Braudel, *The Structures of Everyday Life: The Limits of the Possible*, trans. Siân Reynolds (New York: Harper & Row Publishers, 1981), pp. 470–78.

Furthermore, the bureaucracy of the companies in the form of careful hiring and monitoring of its agents and other associates served to further guarantee the credit of merchant letters. Trading companies sent abroad men they already trusted; the London company masters reading the reports could assume they were as accurate as possible, unless they learned of some new reason to mistrust their agent. When these narratives were published by compilers like Hakluyt or Purchas, they came with the imprimatur of wealthy trading companies, whose financial credit and social credibility were firmly in place. Merchants like Thomas Alcock or Anthony Jenkinson may have had little enough social status on their own, but their accounts of Persia emerged through their involvement in the Muscovy Company and came stamped with its approval. Merchant traveler/authors were lower in rank than gentleman travelers, but such authors had the credit—the financial credit—of the collective merchants who composed the company standing behind the trustworthiness of their relations.

Given the close interactions between the English monarchy and these increasingly wealthy companies (and the less politically problematic origin of the information they provided), the reports generated in the course of company business grew to be quite influential in the international, financial, and diplomatic decisions made by the monarch. Most of the merchant travel relations printed by Hakluyt, Purchas, and other compilers were in service of companies that had continued to grow and conduct further successful voyages to the areas described in the time between the letter's composition and its publication in the collection. For the general reader, the particulars contained in company travel relations could be assumed probable. Unlike travel reports composed by individual gentlemen, who were vulnerable to the winds of local political storms, the narratives produced by joint-stock companies were arguably extended more trust by their readers.

Conclusion

The anxiety surrounding claims about foreign lands, as well as those in natural philosophy, was in part driven by a fear of unregulated witness testimony. Unless one could vet witnesses and thereby assert control over which statements would be allowed to stand as reliable assertions of experiential knowledge, chaos would ensue in the realm of natural knowledge, economic policy, and possibly within civil society as well.³⁶ This kind of chaos was basically acknowledged to reign in the matter of foreign knowledge; it was proverbial that “travellers may lie by authority.”³⁷ Similar fears undoubtedly plagued those seeking to form reliable methods of transmission for information gathered abroad. The establishment of a network of agents deemed reliable by their patron (whether ambassadors or intelligencers) was one method of ensuring the reliability of knowledge relayed

³⁶ Shapin, *A Social History of Truth*, p. 211.

³⁷ See Aston, *Manners, Lawes and Customes*, or the opening lines of William Parry’s *A new and large discourse of the Travels of Sir Anthony Sherley Knight* (London, 1601).

from foreign locales to the monarch's council. Such information would be (only) as credible and reliable as the man who sent it.

Another method adopted by the crown was, I would argue, a growing reliance on the networks of trading company factors, who were already disciplined by their association with an organization that needed to be considered trustworthy to attract investment and conduct basic business. That this information was submitted by a collective body seen to be in some sense removed from the viciousness of court politics helped to protect and regularize the process of knowledge collection and its deployment in government business. It was in a sense the bureaucratizing of foreign reporting. Trading company factors could work together with (and in some cases, as) English ambassadors in forwarding the two prongs of English interests abroad—financial and political; factors and ambassadors could report back to their separate masters information verified by the other's report. By the start of Elizabeth's reign, trading companies were already seeking to discipline the form in which their agents reported back to the masters in London, so that not only the witnesses but the mode of witnessing was controlled by a centralized body.

Especially as the trading companies became better established and written reports of company voyages more regularized, expressing skepticism of such accounts could easily be viewed as a critique of the company itself. The institutionalization of such company travel reports therefore discouraged debate over their reliability, as surely as their relentless focus on geography and goods eliminated the more colorful foreign voices and cultural observations from their accounts. It is partly this way that the particulars in these accounts eventually took on the nature of our modern “facts”: details that are self-evidently true and somehow prior to interpretive debate.

Just as the Royal Society would eventually mediate between individual claimants and established knowledge, the credibility of trading companies stood between the individual authors of their reports and the skepticism of a status-based process of determining credibility. Inherent to the proper functioning of both of these institutions was the regularization of form as both sought to discipline the form of written and/or oral reports delivered to their deciding members. But unlike those in the Royal Society, gentlemen did not always possess the advantage in travel. Not coincidentally, then, when both organizations survived to assume key places in the British Empire as it expanded ever outward to new foreign lands and into new natural environments, common traders trafficked in truth alongside gentlemen.

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Chapter 4

Geography and Authority in the Royal Society's Instructions for Travelers

Jason H. Pearl

In his *Description of the Western Islands of Scotland*, published in 1703, Martin Martin declared, “[T]here is a great change in the humour of the world, and by consequence in the way of writing. Natural and experimental philosophy has been much improved … and therefore descriptions of countries, without the natural history of them, are now justly reckoned to be defective.”¹ Great changes notwithstanding, there was at least a change in travel writing, and perhaps the clearest index of this change is the Royal Society’s instructions for travelers.

The Society’s instructions, disseminated publicly in *The Philosophical Transactions* (1665–), outlined a plan to reform the genre and standardize its conventions, seeking to determine, or predetermine, how English travelers wrote about foreign places. As prescriptions, the instructions for travelers are meant to control the act of representation and specifically to delimit it, calling for only simple, perceptible facts shorn of their experiential origin. In effect, however, the instructions were probably as empowering as they were disciplinary, or perhaps they were empowering because they were disciplinary, for they put forward a language of authority, a rhetoric of plain facts to safeguard against charges of romantic embellishment. The resulting mode of description facilitated not just natural history, but also commercial and imperial expansion, advertising newly and recently discovered places as so much abstract space: intelligible by its quantities, rather than qualities; blank in itself but for the objects that stood atop it; and stripped of all those exotic features preventing easy assimilation within the realm of the familiar.²

As a field of knowledge, natural history was both inductive and reductive, both revealing and concealing. The empirical net stretched far and wide, but it did not catch everything, nor was it designed to. This net arose from a system of

¹ Martin, “Preface,” in *A Description of the Western Islands of Scotland* (London: A. Bell, 1703).

² I am indebted here to Henri Lefebvre’s notion of “abstract space,” which he defines as “conceptualized space, the space of scientists, planners, urbanists, technocratic subdividers and social engineers … all of whom identify what is lived and what is perceived with what is conceived.” “Abstract space” for Lefebvre “is a tool of domination [that] asphyxiates whatever is conceived within it.” See Henri Lefebvre, *The Production of Space*, trans. Donald Nicholson-Smith (Malden, MA: Blackwell, 1991), pp. 38, 370.

knowledge that Michel Foucault, in a similar metaphor, likens to a “grid” with “black squares left to accommodate the invisible [and] open and distinct spaces to accommodate words”; that is, empty slots for that which could be observed and described definitively, shaded slots for that which could not.³ The full-fledged grids of Linnaeus and Buffon would come later, but in the Royal Society’s instructions, we have the net, or one version of it, in an early stage of formation. Obviously, there is a contradiction here. The goal, ostensibly, was to gather new information, information that could not be expected, yet that is exactly what the instructions seem to curtail and to some extent preclude. They owe almost as much to desire as to empiricism, showing us what natural historians wanted to discover before the discoveries and positing an imagined geography to rival or even supplant that experienced by actual travelers.

Ironically, the utility of this method of reconnaissance lay in its being conceived from afar and in its subtle neglect of unforeseen impediments to strategies for profit and power. These strategies, after all, operated most efficiently at the conceptual level and on space that was somehow reduced to this level, space that was conformable to the schemes of natural history. Nowadays, we have grown accustomed to looking for science’s social investments and to regarding its purported disinterestedness as a convenient and sometimes insidious myth. The Fellows of the early Royal Society did little to promote such a myth, insisting instead—to an audience that did not always believe them—that their work had real-world applications, that it was motivated by more than idle curiosity. To this end, Robert Boyle, then the Society’s most prominent Fellow, wrote *The Usefulness of Experimental Natural Philosophy* (1663), in which he catalogues “the numerous advantages accruing to Men from the Study of the Book of Nature.”⁴ Henry Oldenburg, who wrote and assembled many of the instructions in *The Philosophical Transactions*, introduced that publication as a venue for “the advancement of Learning and profitable Discoveries.”⁵ Thomas Sprat, in his famous *History of the Royal Society* (1667), promised “innumerable benefits to all the practical Arts.”⁶ Implicitly, the instructions make similar assurances by requesting information that would be commercially and politically valuable, to the exclusion of much that would not. The purpose, it would seem, was to produce a useful geographic picture, but also to affirm the Society’s role in producing it.

³ Foucault, *The Order of Things: An Archaeology of the Human Sciences*, trans. Alan Sheridan (New York: Vintage, 1994), p. 136; see also Mary Louise Pratt, *Imperial Eyes: Travel Writing and Transculturation* (New York: Routledge, 1992), pp. 15–37.

⁴ Boyle, *Some Considerations concerning the Usefulness of experimental Natural Philosophy* (Oxford: Printed by Hen: Hall, printer to the University, for Ric: Davis., Anno Domini, 1663), p. 2.

⁵ Oldenburg, “The Introduction,” *Philosophical Transactions* 1/1 (1665): p. 1.

⁶ Sprat, *The History of the Royal Society, For the Improving of Natural Knowledge* (London: Printed by T.R. [i.e., Thomas Roycroft] for J. Martyn at the Bell without Temple Bar, and J. Allestry at the Rose and Crown in Duck-Lane. Printers to the Royal Society, 1667), p. 310.

Important here is the form of natural history, as well as its content, or the effect of form on content. Whatever facts they elicited, the Royal Society's instructions helped initiate Martin's new "way of writing." In this sense, the instructions were more than just means to an end; they were preliminary descriptions, only without the informational content. The form of these descriptions exchanged what Oldenburg calls "Romances or Panegyrics" with "severe, full and punctual Truth."⁷ Thus, the instructions run parallel to the so-called "plain style" of writing, which Sprat describes as "a close, naked, natural way of Speaking."⁸

Not long before, explorers had presented their exploits in the manner of chivalric heroes, portraying imperial conquest as a function of great men and great deeds.⁹ The space of conquest was irrelevant, or else defined largely through the actions of the discoverer. Gradually, however, romance became less a structuring genre than a decidedly pejorative epithet used to discredit testimony deemed vain and fanciful. The genre was seen as a vehicle for self-aggrandizement and entertainment, not empire-building. What replaced it, in this capacity, was natural history, which subordinated the great discoverer to the observed environment. Responding to increasing demands for facts, travelers ostensibly moved aside to give readers a better look at the distant places they visited.

Objectivity, however, is a short step from objectification, and by getting out of the way, travelers were making these places more accessible to readers at home looking to invest in future ventures.¹⁰ Natural history, it would seem, was only a better vehicle for propaganda, a more apt form for an age when agriculture and commerce were replacing gold and conquest as the bases of empire.¹¹ In what follows, then, I will elucidate the new way of writing set forth by the Royal Society's instructions for travelers. I have chosen to concentrate on three texts in particular, all from *The Philosophical Transactions*, because each illustrates

⁷ Oldenburg, "The Preface," *Philosophical Transactions* 11/123 (1676): p. 552.

⁸ Sprat, *History of the Royal Society*, p. 113. Much has been written on the plain style. See in particular Peter Dear, "Totius in Verba: Rhetoric and Authority in the Early Royal Society," *Isis* 76/2 (June 1985): pp. 144–61; and Richard Nate, "Rhetoric in the Early Royal Society," in Peter L. Oesterreich and Thomas O. Sloane (eds), *Rhetorica Movet: Studies in Historical and Modern Rhetoric in Honour of Heinrich F. Plett* (Boston: Brill, 1999), pp. 215–31.

⁹ See Jennifer Robin Goodman, *Chivalry and Exploration, 1298–1630* (New York: Boydell and Brewer, 1998); and Joan Pong Linton, *The Romance of the New World: Gender and Literary Formations of English Colonialism* (New York: Cambridge University Press, 1998).

¹⁰ What I mean here is not quite our modern notion of extra-mental truth, arrived at by rigorous and self-conscious discipline, but rather truth constituted by scrupulous attention to the details of physical surfaces, truth that privileged fact-collection over synthesis, theorization, and even commentary. On the pre-history of objectivity, focusing mainly on the Enlightenment, see Lorraine Daston and Peter Galison, *Objectivity* (New York: Zone Books, 2007), pp. 55–113.

¹¹ See Anthony Pagden, *Lords of All the World: Ideologies of Empire in Spain, Britain and France, 1500–1800* (New Haven: Yale University Press, 1995), pp. 63–102.

a different aspect of this new writing and because each seems to have exerted a significant and sustained influence.

Early on, the Society formed a committee to compile what eventually became Laurence Rooke's "Directions for Sea-men" (1666), written to "capacitate them [seamen] for making such observations abroad, as may be pertinent and suitable."¹² Rooke gives travelers nine enumerated tasks, chiefly regarding the practical side of navigation. For instance, he asks them to "remark carefully the Ebbings and Flowings of the Sea, in as many places as they can" and to "keep a Register of all the changes of Wind and Weather at all hours, by night and by day."¹³ Additionally, they must "sound and marke the Depths of Coasts and Ports" and draw up "Plotts and Draughts of prospect of Coasts, Promontories, Islands and Ports."¹⁴ Much of this information must be obtained through instruments, including a compass, dipping needles, and scales. In "An Appendix to the Directions for Seamen, Bound for Far Voyages" (1666), Robert Hooke, another prominent Fellow, diagrammed a new mechanism to determine water depths.¹⁵

These instruments disembody the senses, making them the function of one or another specialized apparatus, rather than the impressionistic human mind. They stabilize the traveler's ever-shifting perspective and hold in place the objects under evaluation, controlling both perceptual intake and the thing that is perceived and curbing the impact of both the subject's personality and the object's context. As the introduction of a recent book collection puts it, "Instruments, measures and data were meant to travel and provide templates for standardization and accountability to varied experiences and encounters made in far-flung sites."¹⁶ Mary Baine Campbell likens the instructions themselves to instruments, calling them "'machines' for extracting usable data"; as such, they alone do most of the work, ostensibly leaving little room for tall tales. Of course, the directions

¹² Rooke, "Directions for Sea-men, Bound for Far Voyages," *Philosophical Transactions* 1/18 (1666): p. 141. I cite Rooke here for the sake of simplicity, even though this is surely Oldenburg's voice, which often segues with the voices of those whose work he published in *The Philosophical Transactions*. For an expanded version of Rooke's instructions, see Oldenburg, "Directions for Observations and Experiments to be Made by Masters of Ships, Pilots, and other Fit Persons in Their Sea-Voyages," *Philosophical Transactions* 2/24 (1667): pp. 433–48. See also Robert Moray, "Patternes of the Tables Proposed to Be Made for Observing of Tides," *Philosophical Transactions* 1/8 (1666): pp. 311–13; and Oldenburg, "Some Observables about Load-Stones, and Sea-Compasses," *Philosophical Transactions* 2/23 (1666): pp. 423–4.

¹³ Rooke, "Directions for Sea-men," pp. 141, 142.

¹⁴ Ibid., p. 142.

¹⁵ See Hooke's "An Appendix to the Directions for Seamen, Bound for Far Voyages," *Philosophical Transactions* 1/9 (1666): p. 147.

¹⁶ Marie-Nöelle Bourguet, Christian Licoppe, and H. Otto Sibum (eds), "Introduction," in Bourguet, Licoppe, and Sibum (eds), *Instruments, Travel, and Science: Itineraries of Precision from the Seventeenth to the Twentieth Century* (New York: Routledge, 2002), p. 3.

themselves could not preclude lies or inaccuracies, but following them could lend an air of dispassionate credibility to otherwise dubious witnesses.¹⁷

In privileging instruments over the mind, Rooke's instructions make exotic places readily measurable and numerically comparable, reducing them to their lowest common denominators. To be sure, all landscape—at least all seaside landscape, as well as the sea itself—has intelligible physical particulars that yield to the measuring power of instruments such as the compass; these instruments can be applied globally and can penetrate even the most distant and different of locations. Rooke's directions, however, are so broadly applicable as to be too general at the local level, capturing only what could be translated across geographic borders. Disregarded were all those qualities that could not be represented by either a map or a table of numbers—in short, all the qualitative differences that travelers register simply as a part of experience.

Rooke's ideal mode of representation, the map, must begin as a process of trial and error, but the finished product removes the trial, the error, and much else, portraying coastlines, rivers, and mountains from an (impossible) overhead perspective that perceives only seamless physical geography. In effacing the subject's perspective, the modern map effaces as well that subject's unique impressions and replaces them with the expectations and desires of the target audience. As Simon Ryan explains, cartography was “an imperial technology used to facilitate and celebrate the further advances of explorers, and display worldwide imperial possessions.”¹⁸

Tables, meanwhile, propound a similar myth of subjectless observation and geography; although actual observers must read and compile measurements, they stand behind these measurements, suffused throughout them, yet nowhere to be found. All the numbers, moreover, imply a geography so thoroughly mastered that it is expressible in a manner no regular observer would recognize. Whatever the pretences to neutrality, these sorts of knowledge are colored by the ideologies of their sources. Just as there is an eye to look through a microscope, so there is a designer and maker of that microscope; likewise, the Fellows of the Royal Society wrote the instructions for specific purposes. At the core of an increasingly global network of commerce, the Society sought to produce and organize information that would be advantageous to its Fellows and to Englishmen more broadly.¹⁹

¹⁷ Mary Baine Campbell, *Wonder and Science: Imagining Worlds in Early Modern Europe* (Ithaca: Cornell University Press, 1999), p. 77.

¹⁸ Ryan, *The Cartographic Eye: How Explorers Saw Australia* (New York: Cambridge University Press, 1996), p. 5. See also J.B. Harley, “Power and Legitimation in the English Geographical Atlases of the Eighteenth Century,” in Paul Laxton (ed.), *The New Nature of Maps: Essays in the History of Cartography* (Baltimore: Johns Hopkins University Press, 2001), pp. 109–47.

¹⁹ Because of the Society's ties across the continent, the question of perspective is complicated. The Fellows of the Society relied heavily on foreigners, be they scientists or travelers, and the instructions were serviceable to commercial and political interests that ranged beyond England. Still, it was the “Royal Society of London,” and following

Soon after the appearance of Rooke's "Directions," Boyle published a very different set of instructions, entitled "General Heads for a Natural History of a Countrey, Great or Small" (1666).²⁰ Reminiscent of Bacon's "History of Cosmography," Boyle's heads certainly are general: "The things observ'd in such a History, may be variously ... divided ... into those things, that respect the Heavens, or concern the Air, the Water, or the Earth."²¹ If Boyle's heads are "general," however, the categories multiply into a profusion of more specific subcategories. Concerning the earth, for instance, Boyle asks travelers to report on everything from "fiery or smoaking Hills" to "What hidden qualities the Soyl may have ... as that of Ireland, against Venomous Beasts."²² He asks about "Grasses, Grains, Herbs, (Garden and Wild) Flowers, Fruit-trees, Timber-trees (especially any Trees, whose wood is considerable)," and so on.²³ The long list of topics opens travelers's eyes to the surrounding variety, but also restricts their reconnaissance primarily to this sense organ by calling for detailed physical descriptions.

What is more, Boyle's method arranges perceptions in conformity with the categories of natural history, delimiting expatiation by segmenting each description along the boundaries of its corresponding head. Travelers are led not inward to interpret, but rather outward to observe ever more carefully and to anatomicize external details into portions as small and specific as the many subtopics. All this was more easily said than done. In Jonathan Lamb's words, "It seems as if an alien shore demands from those who explore it a passionate absorption," and surely such places can incite an initial sense of wonder or sublimity that postpones calm itemization.²⁴ Following Boyle's instructions, travelers could present themselves as coolly detached, their descriptions the product of patient and sure-footed observation.

Robert Iliffe, I regard its character and allegiance as fundamentally English. See Iliffe, "Foreign Bodies: Travel, Empire, and the Early Royal Society of London, Part II: The Land of Experimental Knowledge," *Canadian Journal of History* 34/1 (April 1999): pp. 24–50.

²⁰ For a thorough explanation of Boyle's use of "heads" or "topics," see Michael Hunter, "Robert Boyle and the Early Royal Society: a Reciprocal Exchange in the Making of Baconian Science," *British Society for the History of Science* 40/1 (2007): pp. 1–23.

²¹ Boyle, "General Heads for a Natural History of a Countrey, Great or Small," *Philosophical Transactions* 1/11 (1666): p. 186. Bacon defines his "History of Cosmography" as "compounded of natural history, in respect of the regions themselves; of history civil, in respect of the habitations, regiments, and manners of the people; and the mathematics, in respect of the climates and configurations towards the heavens." See *The Proficience and Advancement of Learning in The Works of Francis Bacon*, ed. James Spedding, Robert Leslie Ellis, and Douglas Denon Heath, 10 vols (New York: Garrett Press, 1970), vol. 3, p. 340. See also John Woodward's *Brief Instructions for Making Observations in All Parts of the World* (1696), which offers a similar scheme of topics.

²² Boyle, "General Heads," p. 188.

²³ Ibid., p. 188.

²⁴ Jonathan Lamb, *Preserving the Self in the South Seas, 1680–1840* (Chicago: University of Chicago Press, 2001), p. 112.

The fragmentation of topics causes a similar fragmentation in geographic representation, so that foreign places become divisible into the sum of their constituent parts. This division creates artificial differences that cover over the pre-existing differences emerging from native traditions and individual experience. As exotic objects are yoked into categories, they leave at their point of origin nothing but blank, malleable space, without unique meaning or worth on its own, space to harvest more of the same thing or to import something different. Thus described, these places become curiosity cabinets, remarkable only for the marvels they contain, or warehouses, valuable for their resources and commodities. The creation of foreign space involved ignoring places and concentrating instead on the myriad particulars atop them; it involved multiplying these particulars to the point that the places underneath dropped out of focus. The particulars continued to multiply, not least with “Other Inquiries Concerning the Sea” (1666), which was also deemed “unfinisht,” and “Articles of Inquiries Touching Mines.”²⁵ Supplemented by heads that were increasingly detailed, Boyle’s system gave the eyes ever more to dissect and describe. In the process, the big picture became blurrier, the larger environment easier to ignore.

Likewise lost in the “General Heads” are native inhabitants, downgraded to the status of all the other topics and split into a list of discrete physical details. Boyle separates his questions about people from those about “the ignobler Productions of the Earth” (grasses, grains, and herbs), but both fall under the larger category of the earth, and that was not uncommon given that natural history often subsumed the histories of supposedly “natural” peoples.²⁶ New information on the cultures of the Americas and the South Seas was in a sense old information, conjuring up legends about earlier phases of human civilization. As Neil Rennie explains, “[T]ravel from civilization tended to be regressive, the traveller discovering not a new land so much as a new location for old, nostalgic fictions about places lost in the distant past.”²⁷

Advances in culture came later, so Boyle asks mainly about physical characteristics and innate behavioral traits, specifically “Stature, Shape, Colour, Features, Strength, Agility, Beauty (or the want of it) Complexions, Hair, Dyet, Inclinations, and Customs that seem not due to Education.”²⁸ Only as an afterthought does he remark, “To these General Articles of inquiries ... should

²⁵ Boyle, “Other Inquiries Concerning the Sea,” *Philosophical Transactions* 1/18 (1665–1666): p. 315; and “Articles of Inquiries Touching Mines,” *Philosophical Transactions* 1/19 (1665–66): pp. 330–43. See also Robert Moray’s “Considerations and Enquiries Concerning Tides,” *Philosophical Transactions* 1/17 (1665–1666): pp. 298–301, to which Boyle refers, and Oldenburg’s “Enquiries Concerning Agriculture,” *Philosophical Transactions* 1/5 (1665–1666): pp. 91–4.

²⁶ Boyle, “General Heads,” p. 188.

²⁷ Neil Rennie, *Far-Fetched Facts: The Literature of Travel and the Idea of the South Seas* (New York: Oxford University Press, 1995), p. 1.

²⁸ Boyle, “General Heads,” p. 188.

be added ... Inquiries about Traditions concerning all particular things, relating to that Country, as either peculiar to it, or at least, uncommon elsewhere.”²⁹ Actually, the question seems less concerned with ethnography than with the sort of knowledge that could be adopted by visitors and potentially brought home—exportable technologies. Whatever the relationship between native inhabitants and their homeland, the question assumes these people to be only another detachable part of the landscape, only more shards of the fragmented picture.

Appearing later the same year, the next important set of instructions is Oldenburg’s “Inquiries for Suratte, and Other Parts of the East-Indies,” many of whose (sometimes very odd) questions tried to prove or disprove individual travel reports and, thus, to separate fact from fiction. Unlike Rooke’s and Boyle’s instructions, Oldenburg’s are not globally applicable; rather, they are the opposite, relating to specific objects and phenomena in specific locations. Indeed, we might think of them as targeted inquiries aimed at those issues that Boyle’s model did not, or could not, cover. Travelers must learn:

Whether it be true that [in Surat] Diamonds and other Precious Stones, do grow again after three or four years, in the same places where they have been digg’d out ... Whether there grows a Wood in Java, that naturally smells like humane Excrement? And if so, what kind of ground it grows in ... Whether in the Molucque Islands there be a Red Wood, which burns, sparkles, and flames, without being consumed; yet may be reduced to powder, by rubbing ones fingers ... Whether near the Fort of Ternate there be a Plant, call’d by the Inhabitants Capota, whence fall little Leaves, which are turned into Butter-flies.”³⁰

These questions—38 in all—hang somewhere between belief and disbelief, but with any luck not for long since their purpose was to eradicate precisely the wonder to which they might seem prey. For Lorraine Daston and Katherine Park, “The open-mindedness required by Baconian empiricism predisposed natural philosophers to lend a sympathetic ear to marvellous tales that had been ignored by their predecessors and would be ridiculed by their successors.”³¹

²⁹ Ibid., p. 189.

³⁰ Oldenburg, “Inquiries for Suratte,” *Philosophical Transactions* 2/23 (1666–1667): pp. 415 and 417. For similar instructions designed for specific locations, see also Oldenburg, “Promiscuous Inquiries, Chiefly about Cold, Formerly Sent and Recommended to Monsieur Hevelius,” *Philosophical Transactions* 1/19 (1665–1666): pp. 344–52; Oldenburg, “Inquiries for Turkey,” *Philosophical Transactions* 1/20 (1665–1666): pp. 360–62; Thomas Henshaw and Abraham Hill, “Inquiries for Hungary and Transylvania,” *Philosophical Transactions* 2/25 (1667): pp. 467–9; Henshaw, “Inquiries for Ægypt,” *Philosophical Transactions* 2/25 (1666–1667): pp. 470–72; Hill, “Inquiries for Guiny,” *Philosophical Transactions* 2/25 (1666–1667): p. 472; Oldenburg, “Enquiries for Greenland,” *Philosophical Transactions* 2/29 (1666–1667): pp. 554–5; Oldenburg, “Enquiries and Directions for the Ant-Iles, or Caribbe-Islands,” *Philosophical Transactions* 3/33 (1668): pp. 634–9.

³¹ Daston and Park, *Wonders and the Order of Nature, 1150–1750* (Cambridge: MIT Press, 1998), p. 250.

Nevertheless, in lending an ear to such tales, the Fellows were subjecting them to serious—and eventually demystifying—skepticism, which evolved into ridicule soon enough. Their open-mindedness owed itself not to naivety but to a self-conscious acknowledgement of uncertainty, and this uncertainty came with considerable deliberation about the grounds of believable testimony.³² If Oldenburg's instructions could not, alone, separate truth from falsehood, they could at least impart the task to travelers, who would then present themselves as fact-checkers seeking to debunk the lies of predecessors.

The "Inquiries for Suratte" directly confronts the sort of marvel that Bacon calls "Deviating Instances," or "errors, vagaries and prodigies of nature, wherein nature deviates and turnes aside from her ordinary course."³³ Its enquiries are meant to eliminate such deviations, either normalizing or invalidating them and thereby ridding strange places of their strange characteristics. The implication is that all of the world's deviating instances could be studied and understood, that these deviations, if they existed, were attributable to a core of ultimately knowable principles. When natural philosophers discovered such principles, the thinking goes, they would see that deviating instances did not truly deviate; rather, they were manifestations of normal variety. Accordingly, the bounds of normalcy were extended to cover even those areas about which little or nothing was known, those areas that were, in the experience of travelers, anything but normal. Foreign space was thus reconfigured as domestic space, such that a leaf's turning into a butterfly would be no stranger than a different form of chrysalis. This focus on natural continuities, rather than cultural discontinuities, effectively removes a sense of exoticness that might otherwise bewilder the traveler and defer appropriation. To describe a place as exotic is to aestheticize and also trivialize it, but to efface its differences—or to render them superficial—is to open that place to the universalizing premises of science and the expansionist projects of commerce and imperialism.

The geography prescribed by the instructions for travelers neatly complemented the most common justification for the English (then British) presence in North America, the so-called "agriculturalist" argument, itself an extension of the old Roman law *res nullius*. The Romans held that empty land was common until made use of agriculturally. Apologists for the American colonies refined and adapted this justification until John Locke, another Fellow of the Society, gave it enduring form in the chapter "Of Property," from his *Second Treatise of Government* (1689). Here, Locke asserts that only labor could confer property rights over—supposedly—

³² For the criteria used for evaluating testimony, see Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: University of Chicago Press, 1994), pp. 193–242. See also Lamb, "Eye-Witnessing in the South Seas," *The Eighteenth Century: Theory and Interpretation* 38/3 (1997): pp. 201–12; and Daniel Carey, "Travel, Geography, and the Problem of Belief: Locke as a Reader of Travel Literature," in Julia Rudolph (ed.), *History and Nation* (Lewisburg, PA: Bucknell University Press, 2006), pp. 97–136.

³³ Francis Bacon, *The New Organon*, in *Works of Francis Bacon*, vol. 4, pp. 168–9.

unowned things, including lands used by hunter-gatherer societies: “Whatsoever ... he removes out of the state that nature hath provided and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it his property.”³⁴ The instructions prepare the ground, in a manner of speaking, for agriculturalist expropriation: they clear it of inhabitants, organize it, and ready it for labor. Rooke’s instructions, for instance, turn land into mere quantifiable space; Boyle’s instructions locate objects of value; and Oldenburg’s naturalize sites of work. These instructions did so, moreover, before the travelers even arrived.

Throughout the rest of the seventeenth century and into the eighteenth, more instructions followed, yet the underlying assumptions seem to have remained in place. In 1692, Boyle’s “General Heads,” Oldenburg’s “Inquiries,” and others were expanded and republished under the title *General Heads for the Natural History of a Country, Great or Small*. In 1704 Rooke’s instructions were reprinted verbatim in “An Introductory Discourse, Containing the Whole History of Navigation from Its Original to the Present Time,” which prefaced Awnsham and John Churchill’s popular anthology, *A Collection of Voyages and Travels*.

Of course, we must be careful not to ascribe too much influence to the instructions or assume they exerted undue control over travel or travel writing. First of all, we cannot know how many travelers read or self-consciously followed the Society’s instructions, and clearly the instructions are only one part of larger intellectual trend. We should not imagine sailors at the helm following individual instructions, checking them off one after another. Indeed, most travelers would have known the Society’s instructions only indirectly, as a general set of principles. Second, new facts were often too powerful for systems that could not accommodate them, and the founding of a system equal to such facts was one of the Society’s oft-repeated ambitions.

If the instructions impose a preliminary system themselves, their effectiveness as anything more than a model is debatable. As Ralph Bauer puts it, we need to distinguish between theory and practice:

In theory ... imperial economies of knowledge production ... resembled the mercantilist economies of material production, based as they were on a regulated and protected balance of exchange in the eastward flow of raw materials ... and the westward flow of refined consumer products and manufactured goods. In practice, however, these imperial epistemic economies, like their material counterparts, existed but as logocentric utopias that engendered their own modes of geo-political resistance and were frequently undermined by colonial subjects.³⁵

³⁴ Locke, *The Second Treatise of Government* in *John Locke: Political Writings*, ed. David Wooton (Indianapolis: Hackett, 2003), p. 274. See also James Tully, “Rediscovering America: The Two Treatises and Aboriginal Rights,” *An Approach to Political Philosophy: Locke in Contexts* (New York: Cambridge, 1993), pp. 137–76.

³⁵ Bauer, *The Cultural Geography of Colonial American Literatures: Empire, Travel, and Modernity* (New York: Cambridge University Press, 2003), p. 4.

Responding to Bauer, Susan Scott Parrish argues, “The centrally controlled mercantilist economy of empire did not provide the logic and structure for transatlantic science. Empiricism, theoretically and practically, entailed a more diffuse recognition of authority.”³⁶ Of course, the instructions extended well beyond the Atlantic world, so their authority was probably more diffuse still. Daniel Carey goes so far as to invert the hierarchy altogether and claim that “in many cases it was not the Royal Society that directed travel, but rather travel that directed the Royal Society.”³⁷ The Fellows of the Society, especially Oldenburg, were avid readers of travel literature, and much in the instructions was derived from previous travel accounts. If the Fellows wanted helpers or mere collectors, what they got were collaborators—at least at the level of specific facts.

The relationship between the Royal Society and travelers was therefore a partnership. The Fellows of the Society needed travelers, or else the project of natural history would be hopelessly incomplete. In addition, the virtuosi, as they were called, had legitimacy problems of their own. Often caricatured by Samuel Butler, Thomas Shadwell, and others as vain and credulous wonder-collectors, they were probably eager to ally themselves with well-regarded travelers, especially travelers whose reports were thought to be commercially and politically useful. The relationship was reciprocal in that the Society’s Fellows, most of them gentlemen, could offer many travelers—merchants, sailors, soldiers, buccaneers—a level of social prestige that would have been otherwise unobtainable.³⁸ Oldenburg published scores of travel reports in *The Philosophical Transactions*, and on several occasions, individual Fellows stepped forward to lend their names to book-length narratives. Hans Sloane, the second editor of the *Transactions*, wrote a favorable review of William Dampier’s *New Voyage round the World* (1697).³⁹ Hooke wrote a prefatory endorsement in Robert Knox’s *Historical Relation of the Island Ceylon* (1681), as Tancred Robinson did in the collection *An Account of Several Late Voyages and Discoveries* (1694).

Dampier did as much as anyone to popularize the new way of writing. His *New Voyage*, which raced through three editions in the first year, four in the first two years, and seven by 1727, was dedicated to Charles Montagu, Lord Halifax, then the Society’s President. The book offered a profusion of natural historical descriptions pertaining to “Soil, Rivers, Harbours, Plants, Fruits, Animals, and

³⁶ Parrish, *American Curiosity: Cultures of Natural History in the Colonial British Atlantic World* (Chapel Hill: University of North Carolina Press, 2006), p. 314.

³⁷ Carey, “Compiling Nature’s History: Travellers and Travel Narratives in the Early Royal Society,” *Annals of Science* 54/3 (May 1997): p. 276.

³⁸ For the importance of social status in claims to truthfulness, particularly by travelers, see Shapin, *A Social History of Truth*, 243–309. For a case study focusing on William Dampier, see Anna Neill, *British Discovery Literature and the Rise of Global Commerce* (New York: Palgrave, 2002), pp. 31–51.

³⁹ Sloane, “An Account of a Book,” *Philosophical Transactions* 19/225 (1697): pp. 426–40.

Inhabitants," as the title page advertises. All these details tend to crowd out the author, who modestly claims, "As to my Stile, it cannot be expected, that a Seaman should affect Politeness; for were I able to do it, yet I think I should be little sollicitous about it, in a work of this Nature."⁴⁰ The result, in the *New Voyage* and other voyage narratives, was a series of virtual worlds that abounded in material particulars. With the human connection stripped away, there remained no barriers to strategies for commercial and political exploitation—no gatekeeper, we might say, standing in the way. Dampier himself endorsed these endeavors, professing "a hearty Zeal for the promoting of useful knowledge, and of any thing that may never so remotely tend to my Countries advantage."⁴¹

Still, if travel writers followed the instructions, they followed them in their own particular ways, adapting them to fit a variety of forms already at hand, such as the captivity narrative or, in Dampier's case, the buccaneering narrative. We can see from the revisions to the manuscript version of the *New Voyage* that a narrative of events came first and that the descriptions of plants and animals were interpolated, sometimes abruptly and awkwardly, at corresponding chronological moments.⁴² The published version is top-heavy with descriptions, which are obviously the book's emphasis, but these descriptions were grafted onto a format that is in some ways inimical to them. Almost apologetically, Dampier explains, "Before the Reader proceed any further in the perusal of this Work, I must bespeak a little of his Patience ... It is composed of a mixt Relation of Places and Actions, in the same order of time in which they occurred."⁴³ As Philip Edwards notes, the method of "combining static descriptions of peoples, places and natural history with a narrative of events was never finally and satisfactorily settled."⁴⁴ In defense, Dampier claims that the purpose of the narrative portions is "not to divert the Reader ... but for methods sake, and for the Readers satisfaction; who could not so well acquiesce in [the] Description of Places, &c. without knowing the Particular Traverses ... made among them."⁴⁵ In other words, the narrative legitimizes the descriptions by demonstrating the authenticity of his experiences, even as this context marks his descriptions as inescapably contingent and firmly rooted in a particular perspective.

Natural historical facts could serve the individual, as well as the nation, reflecting the courage and conduct of the brave hero who had ventured so far to gather them. This is the point of the common accusation of romantic

⁴⁰ Dampier, "Preface," *A New Voyage round the World*, 5th edn (London: James Knapton, 1703).

⁴¹ Dampier, "To the Right Honourable Charles Mountague," *A New Voyage round the World*.

⁴² The manuscript is part of the Hans Sloane Manuscript Collection at the British Library (GB-Lbl MS Sloane 3236).

⁴³ Dampier, "Preface," in *A New Voyage round the World*.

⁴⁴ Edwards, *The Story of the Voyage: Sea-Narratives in Eighteenth-Century England* (New York: Cambridge University Press, 1994), p. 28.

⁴⁵ Dampier, "Preface" in *A New Voyage round the World*.

embellishment: that travelers had privileged themselves over their country, that they had distorted their descriptions to enhance their reputations. Whatever his attempts at invisibility, Dampier is inescapably present as the author, as the describer behind the descriptions, and that is perhaps inevitable in any first-person narrative. Ultimately, the synthesis of genres in the *New Voyage*, and the many similar narratives, involves an underlying negotiation between both science and self and between empire and individual, such that the sway of the instructions was always offset by the assertiveness of travelers.

The Royal Society offered a new way to tell the truth about foreign geography. If it was not the only way, it was perhaps no less normative, reflecting the ideal of particularity, coupled with the always-pervasive drive for material gain. Travelers reserved the right to tell truths of their own, yet readers could—and frequently did—dismiss such reports as mere tall tales. Since the truthfulness of travelers' testimony could not be judged by experience, it tended to be judged instead by conjecture and desire.

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PART 2

New Science, New Worlds



Fig. Pt.2 Frontispiece to Maria Sibylla Merian's *Histoire générale des insectes de Surinam et de toute L'Europe* (1771). Reproduced by permission of Dumbarton Oaks Research Library and Collection, Rare Book Collection, Washington, D.C., no. 001331597.

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Chapter 5

Traditions of the Monstrous in William Dampier's *New Holland*

Geraldine Barnes

Three strands of pre-Enlightenment thought grappled with the question of what lay on the southern side of the equator and what forms of life might be found there. In the Ptolemaic tradition, a “Fourth Continent” equivalent to the combined landmass of Europe, Asia, and Africa, was joined to the latter two; in medieval thought, the Antipodes were considered probably inaccessible, possibly non-existent, and either uninhabited or monstrously peopled; and *Terra Australis Incognita*, the fabled Great South Land of vast proportions and natural riches, made its first appearance on European maps in the fifteenth century.¹

Throughout these constructions and hypotheses of geography and demography there runs an association between southernness and monstrousness which probably originates in the notion of the “Fourth Continent” as an extension of Asia and Africa. In the Hereford Map (c.1300), for example, the monstrous races are lined up in a notional continent below Ethiopia on the southernmost edge of the world.² The man-eating, dog-headed *cynocephali* of the medieval encyclopedic tradition appear in the work of the sixteenth-century mapmakers of Dieppe, whose lush land of Java la Grande, southeast of Sumatra, bears some

¹ Scholarship on the medieval Antipodes and the Great South Land is extensive. See, for example, Patricia Gilmartin, “The Austral Continent on 16th Century Maps/An Iconological Interpretation,” *Cartographica* 21/4 (Winter 1984): pp. 38–52; William Eisler, *The Furthest Shore: Images of Terra Australis from the Middle Ages to Captain Cook* (Cambridge: Cambridge University Press, 1995); Miriam Estensen, *Discovery: The Quest for the Great South Land* (Sydney: Allen & Unwin, 1998); Simon Ryan, *The Cartographic Eye: How Explorers Saw Australia* (Cambridge: Cambridge University Press, 1996), pp. 105–17; Paul Simpson-Housley, *Antarctica: Exploration, Perception, and Metaphor* (London and New York: Routledge, 1992), pp. 1–7.

² See, for example, Rudolf Simek, *Heaven and Earth in the Middle Ages: The Physical World before Columbus*, trans. Angela Hall (Cambridge: The Boydell Press, 1996), pp. 88–9. On the monstrous races on the Hereford Map, see Scott D. Westrem, *The Hereford Map: A Transcription and Translation of the Legends with Commentary* (Turnhout, Belgium: Brepols Publishing, 2001), esp. pp. 374–87.

similarity in outline to the north coast of Australia.³ Belief in the so-called Patagonian giants, so named by Magellan, according to his chronicler Antonio Pigafetta,⁴ persisted into the late eighteenth century.⁵

Notions of southern monstrousness, this essay will argue, also inform the earliest firsthand description of Australia in English, by the buccaneer, hydrographer, and natural scientist William Dampier, who in 1688 dropped anchor at an island just off the land he called “*New Holland*, a part of *Terra Australis Incognita*,”⁶ near the present day town of Dampier, Western Australia. In *A New Voyage Round the World* (1697), the narrative of his 12-year circumnavigation (1679–91), Dampier condemned the indigenous people he encountered there as “the miserablest people in the world.” A few years ago, an article in *The Guardian* called that notorious description “a monstrous caricature of Australia’s indigenous people as lacking art or meaningful beliefs of any kind.”⁷ The key word here is “monstrous,” for although Dampier casts his narratorial self in the mode of earnest subscriber to the Royal Society’s travelers’s code of empirical practice and unembellished observation, his description of New Holland and its people intimates the monstrous antipodes of the Middle Ages and the Renaissance. Nevertheless, in the dedication of *A New Voyage* to the president of the Royal Society, Charles Montague, Dampier declares, that he writes a “plain piece” intended for the promotion of “useful knowledge,” and that he sets down “such Observables as I met with” (A3).

A New Voyage is a considerably more fleshed out account of Dampier’s travels, particularly in its ethnographic descriptions, than the narrative entitled “The Adventures of William Dampier,” with marginal annotations in his own hand, preserved in the British Library manuscript Sloane 3236. The process by which his “Journal of every days Observations,” which he refers to in the Preface to *A New Voyage*, evolved into the Sloane manuscript and the manuscript into the published work is not clear, but the composition of *A New Voyage* appears to have been a three-part process.⁸ In the preface to his later book, *A Voyage to New Holland* (1703),

³ See Helen Wallis, “Java la Grande: The Enigma of the Dieppe Maps,” in Glyndwr Williams and Alan Frost (eds), *Terra Australis to Australia* (Melbourne: Oxford University Press in association with the Australian Academy of the Humanities, 1988), pp. 39–81.

⁴ Antonio Pigafetta, *Magellan’s Voyage: A Narrative Account of the First Navigation*, trans. and ed. R.A. Skelton (London: The Folio Society, 1975), pp. 42–7.

⁵ On the “giants of Patagonia,” see *Patagonia: Natural History, Prehistory, and Ethnography at the Uttermost end of the Earth*, ed. Colin McEwan, Luis A. Borrero, and Alfredo Prieto (Princeton: Princeton University Press, 1997), pp. 127–39.

⁶ William Dampier, *A New Voyage Round the World* (London: James Knapton, 1699), p. 461. All references are to this edition.

⁷ Jonathan Jones, “Aborigines are wrong about Harry,” *The Guardian*, 20 August 2003. <http://www.guardian.co.uk/comment/story/0,,1021998,00.html>.

⁸ On this question and for a comparison of the manuscript and printed texts of *A New Voyage*, see Philip Edwards, *The Story of the Voyage: Sea-Narratives in Eighteenth-Century England*, Cambridge Studies in Eighteenth-Century English Literature and Thought, vol. 24 (Cambridge: Cambridge University Press, 1994), pp. 20–31.

Dampier refutes allegations that *A New Voyage* was not entirely his own production: "Others have taxed me with borrowing from other Men's Journals; and with Insufficiency, as if I was not my self the Author of what I write, but published Things digested and drawn up by others."⁹ The published narrative may, he concedes, have been "Revised and Corrected by Friends," but he nevertheless defends its fidelity to firsthand observation and his intention to write for readers "more desirous of a Plain and Just Account of the true Nature and State of the Things described, than of a Polite and Rhetorical Narrative" (lxviii).

Cognitively, however, Dampier's world was not entirely separated from the Middle Ages and the Renaissance. In the history of ideas he is intriguingly positioned on the medieval-modern cusp where textual authority collides with empiricism, where astrology and alchemy still had their adherents among thinkers like Newton and Boyle,¹⁰ and where the boundaries between imaginary and real geography were not entirely clear cut. Traditions of the medieval monstrous lingered well into the seventeenth century amongst anatomists and members of the Royal Society, who, in the interests of advancing knowledge and understanding of bodily afflictions, were drawn to the study of the abnormal and morbid.¹¹ Though frequently derided by seventeenth-century writers as unreliable "travelers's tales," the fourteenth-century *Mandeville's Travels* was printed many times during the 1600s.¹² The now less well-known *Omnium gentium mores* ("The customs of all peoples"), a work of largely imaginative geography and medieval perspective published in 1537 by the German scholar Johannes Boemus, likewise existed side by side with first-person accounts of contemporary voyages of discovery.¹³ Translated into Italian, French, Spanish, and English, the *Omnium gentium mores* was widely read throughout Europe for a century after its first publication. It appeared twice in English translation: first in 1555, with the title *The Fardle* ("bundle" or "collection") of *facion*s and again, in 1611, as *The manners, lawes, and customes of all nations*.¹⁴ The sixth chapter of its section on Africa, "Of the Poeni, and thother peoples of Aphrique," is largely an account of fabulous monstrous peoples.

⁹ William Dampier, *A Voyage to New Holland by William Dampier*, ed. James A. Williamson (London: The Argonaut Press, 1939), p. lxviii. Subsequent references are to this edition.

¹⁰ Michael Hunter, *Science and the Shape of Orthodoxy: Intellectual Change in Late Seventeenth-Century Britain* (Woodbridge: The Boydell Press, 1995), p. 17.

¹¹ Margaret T. Hodgen, *Early Anthropology in the Sixteenth and Seventeenth Centuries* (Philadelphia: University of Pennsylvania Press, 1964), p. 126.

¹² See C.W.R.D. Moseley, "The Metamorphoses of Sir John Mandeville," *The Yearbook of English Studies* 4 (1974): pp. 5–25.

¹³ Johannes Boemus, *The Fardle of facion*s (London: Ithon Kingstone, and Henry Sutton, 1555). As Hodgen puts it, the contents of the *Fardle of facion*s were "at most transitional." See *Early Anthropology*, p. 135.

¹⁴ *Ibid.*, pp. 132–3.

Unsurprisingly, at this pivotal period in the history of scientific thought, pre-modern lore and the new science are not wholly disengaged in Dampier's work. Take the monstrous race of cannibals. Dampier demonstrates that he knew of the *Anthropophagi* (or *Authropophagi*, as he calls them), those headless cannibals with eyes in their shoulders and mouths in their chests of whom Shakespeare wrote in *The Merry Wives of Windsor* and *Othello* and whose existence in Guiana Walter Raleigh was prepared to endorse on the basis of second-hand report.¹⁵ His pronouncement on cannibals challenges both written authority and popular tradition with his own experience: "As for the common Opinion of *Authropophagi*, or Man-eaters," he says, "I did never meet with any such People ... I speak as to the Compass of my own Knowledge" (485). The position of this comment is significant. Dampier makes it just as his narrative reaches the Nicobar Islands, in the vicinity of which the man-eating *canocephali* of the Dieppe Maps had been reported by Mandeville and Marco Polo. He mentions neither author by name, but implicit in his stance is a refutation of both hearsay and textual authority. Vestiges of the legendary gigantic south, on the other hand, surface when the contents of a shark's maw, possibly a dugong, are identified in *A Voyage to New Holland* as the remnants of a *Hippopotomus* (87). It is clear from elsewhere in his writings that Dampier knew a hippopotamus from a dugong/manatee/sea cow/*hippocampus* ("seahorse").¹⁶ The implication is that although he might have been surprised at what was inside the shark, he was not totally surprised to find such evidence of bigness in the southern latitudes.

Dampier's observations did, however, demonstrate that some things which were thought by the new age to be medieval fables were in fact true. Among what the English geographer Peter Heylyn ridiculed in his *Cosmographie in four Books, Contayning the Chorographie & Historie of the whole World* ... as the "many incredible fables ... all huge and monstrous lies, and not fit for credit,"¹⁷ especially of the thousands of islands "about India," are two phenomena since accurately confirmed by Dampier as natural wonders: tortoise shells big enough for ten men to sit in and dine are verified by his description of the giant turtles of the Galapagos (101–6); and Antonio Galvano's oysters, derisively reported by Heylyn to have been described as large enough for christening fonts,¹⁸ are probably Dampier's "Cockles, as big as a Man's Head; of which 2 or 3 are enough for a Meal," that is, the giant clam of Southeast Asia.¹⁹

¹⁵ Sir Walter Raleigh, *Discoverie of the Large, Rich, and Bewtiful Empire of Guiana* (London: Robert Robinson, 1596), pp. 69–70.

¹⁶ See, for example, his descriptions in "Two Voyages to Campeachy," in John Masefield (ed.), *Dampier's Voyages*, 2 vols (London: Grant Richards, 1906), vol. 2, p. 203.

¹⁷ Peter Heylyn, *Cosmographie in four Books, Contayning the Chorographie & Historie of the whole World, and all the Principal Kingdoms, Provinces, Seas, and Isles thereof* (London, 1666), p. 903.

¹⁸ *Ibid.*, p. 903.

¹⁹ Dampier, *A Voyage to New Holland*, p. 169. One was found in March 2000 in the wreck of Dampier's ship, the *Roebuck*, which sank off Ascension Island in 1699.

But how much of Dampier's description of New Holland in *A New Voyage* is purely empirical observation and how much is medieval lore? Certainly, what Dampier claims in the Preface to *A New Voyage* as scientific/objective description in jargon-free English, as he is writing for the "Land Reader" and his "Countreymen," and thus eschewing the use of both seafaring terminology and learned Latin names, is not unequivocally so (A4). But did "plain" and "unrhetorical" in seventeenth-century scientific and philosophical writing mean exactly what we might understand by these terms today? Plainness in language in those two contexts, as a recent answer to this much disputed question suggests, did not denote or demand the absence of figurative rhetoric but rather of "a lack of occult influence," or, in other words, suggestion of the influence on human affairs of "purposeful auras, powers, cosmic signs, angels, and devils."²⁰ Just how earnestly members of the Royal Society subscribed by the late 1690s to Thomas Sprat's claim in his *History of the Royal Society* (1667) that its members "have indeavor'd, to separate the knowledge of *Nature* from the colours of *Rhetorick*, the devices of *Fancy*, or the delightful deceit of *Fables*,"²¹ is a matter for debate. By the 1690s, rhetoric and the voice of the New Science were by no means mutually exclusive.²²

Introductory ethnographic description in *A New Voyage* subscribes to the catalogue format, recommended by Robert Boyle, of stature, shape, color, features, strength, agility, complexion, hair, diet, customs, and languages spoken or understood. For example, the Moskito Indians of the Isthmus of Panama are "tall, well-made, raw-boned, lusty, strong, and nimble of Foot; long-visaged, lank black Hair, look stern, hard favour'd, and of a dark copper-colour Complexion" (7); the natives of the Pearl Islands (off Honduras) are a "people of a mean Stature, yet strong Limbs; they are of a dark Copper-colour, black Hair, full round Faces, small black Eyes, their Eye-brows hanging over their Eyes, low Foreheads, short thick Noses, not high, but flattish; full Lips, and short Chins" (31–2); the people of Mindanao are "men of mean statures; small Limbs, straight Bodies, and little Heads. Their Faces are oval, their Foreheads flat, with black small Eyes, short low Noses, pretty large Mouths; their Lips thin and red, their Teeth black, yet very sound, their Hair black and straight, the colour of their Skin tawney, but inclining to a brighter yellow than some other *Indians*, especially the Women ..." (325–6); the natives of the Bashee [Batan] Islands are "short squat People; they are generally round-visaged, with low Fore-heads, and thick Eye-brows; their Eyes of

²⁰ Ryan J. Stark, "From Mysticism to Skepticism: Stylistic Reform in Seventeenth-century British Philosophy and Rhetoric," *Philosophy and Rhetoric* 34/4 (2001): p. 324.

²¹ Thomas Sprat, *The History of the Royal-Society for the Improving of Natural Knowledge* (London, 1667), pp. 61–2, as quoted by Hunter, *Science and the Shape of Orthodoxy*, p. 171.

²² Hunter, *Science and the Shape of Orthodoxy*, p. 175. See further, Brian Vickers, "The Royal Society and English Prose Style: A Reassessment," in Brian Vickers and Mancy S. Strüver (eds), *Rhetoric and the Pursuit of Truth: Language Change in the Seventeenth and Eighteenth Centuries* (Los Angeles: William Andrews Clark Memorial Library, University of California Press, 1985), pp. 1–76.

a hazel colour, and small, yet bigger than the *Chinese*; short low Noses, and their Lips and Mouths middle proportioned. Their Teeth are white; their Hair is black, and thick, and lank, which they wear but short ... Their Skins are of a very dark copper colour" (325–6); and the *Hodmadods* [Hottentots] of Southern Africa are:

People of a middle Stature, with small Limbs and thin Bodies, full of activity. Their Faces are of a flat oval Figure, of the *Negro* make, with great Eye-brows, black Eyes, but neither are their Noses so flat, nor their Lips so thick, as the *Negroes* of *Guinea*. Their Complexion is darker than the common *Indians*; though not so black as the *Negroes* or *New Hollanders*; neither is their Hair so much frizzled (537).

But when Dampier moves into descriptions of social customs, objective cataloguing becomes subjective commentary and assessment and approval is measured by receptiveness to or imitation of European, and particularly English, models. Most highly rated are the bold and sharp-eyed Moskito Indians, who are deferential to European men and imitative of Englishmen. They learn English and all have at least a smattering of the language, "corresponding so much with us, do all of them smatter *English* after a sort" (181), they wear English clothes in English company, and, in the absence of any discernible form of government, acknowledge the king of England as their sovereign:

These *Moskito*'s are in general very civil and kind to the *English* They have no form of Government amongst them, but acknowledge the King of *England* for their Sovereign. They learn our Language, and take the Governor of *Jamaica* to be one of the greatest Princes in the World. While they are among the *English*, they wear good Cloaths, and take delight to go neat and tight (10–11).

New Holland and its people are, by contrast, the most extreme example of the obstinately "Other." The latter exhibit no potential for Europeanization (let alone colonial deference) in terms of willingness to trade, perform menial tasks, learn European languages, or wear European clothing. But there is a striking difference here between the narrative in Sloane 3236 and the printed *New Voyage*. The manuscript reports unadorned fact: the land was dry and barren, and its inhabitants apparently undernourished and lacking in material possessions and comforts:

[T]he people of this Country have noe houses nor any thing like a house neither have they any sorte of Graine or pulse, flesh they have not nor any sorte of Cattle ... they are not troubled with household goods nor cloaths They are people of good stature but very thin and leane I Judge for want of food they are black yett I believe their haires would be long if it was comed out but for want of Combs it is matted vp like a *Negroes* haire, they have all that I saw two fore teeth of vpper Jaw wanting both Men women and Children.²³

²³ Sloane 3236, fol. 221 r–fol. 222 r. References are to the transcription of "The Adventures of William Dampier," in Sloane 3236 by Amanda Collins.

Only once does Dampier make a brief and obliquely disparaging comment to the effect that when four of “the natives” are taken on board the buccaneers’s ship *The Cygnet*, they “tooke noe notice of any thing that wee had noe more then a bruite would.”²⁴

In the printed *New Voyage*, however, Dampier adopts a distinctly colored mode of reportage:

The Inhabitants of this Country are the miserablest People in the World. The *Hodmadods* . . . though a nasty People, yet for Wealth are Gentlemen to these . . . setting aside their Humane Shape, they differ little from Brutes . . . They have great Heads, round Foreheads, and great Brows. Their Eye-lids are always half closed, to keep the Flies out of their Eyes: they being so troublesome here, that no fanning will keep them from coming to ones Face; and without the assistance of both Hands to keep them off, they will creep into ones Nostrils; and Mouth too, if the Lips are not shut very close. So that from their Infancy being thus annoyed with these Insects, they do never open their Eyes, as other People . . . They have great Bottle-Noses, pretty full Lips, and wide Mouths. The two fore-teeth of their upper-Jaw are wanting in all of them, Men and Women, Old and Young; whether they draw them out, I know not . . . They [sic] are long visaged, and of a very unpleasing Aspect, having no one graceful Feature in their Faces . . . These People speak somewhat thro’ the Throat; but we could not understand one word that they said . . . [they] grinn’d like so many Monkeys, staring one upon another another: For these poor Creatures seem not accustomed to carry Burthens . . . they had such bad Eyes, that they could not see us till we came close to them (464–9).

With their forever closed eyes, these are, most tellingly, not “as other People.” Their “great Heads,” “great Brows,” and “Bottle-Noses” are suggestive of the monstrously large. At least one mid-seventeenth-century writer, the physician John Bulwer, made a distinction between self-inflicted “monstrousness” (such as body piercing, ear ornamentation, and strange hair-styles) and “natural” deformity;²⁵ on the matter of their missing front teeth, Dampier has a bet each way (“whether they draw them out, I know not”).

Like Mandeville’s troglodytes of the isle of “Tarkonet,” “where all men are as Beasts, for they are unreasonable, and they dwell in Caves, for they have not Wit to make Houses,”²⁶ the unhoused, unintelligible (“we could not understand one word that they said” [466]) people of New Holland are explicitly said to “differ little from Brutes” (464). Moreover, they “grinn’d,” he says, “like so many Monkeys” (468). Dampier was not the first to make the monkey-indigenous people connection. Albertus Magnus had floated the notion back in the thirteenth century; Thomas Herbert had likened the speech and gestures of the Hottentots

²⁴ Sloane 3236, fol. 222 v.

²⁵ Hodgen, *Early Anthropology*, pp. 128–9.

²⁶ John Mandeville, *The Voyages & Travels of Sir John Mandeville, Knight* (London: Printed for R. Scott, T. Basset, J. Wright, and R. Chiswell, 1677); see particularly chapter lx.

to apes in his *A Relation of some Yeares Travaile, begunne anno 1626* (1634); and in his *A voyage to Suratt* (1696), John Ovington had called them “the very Reverse of Human Kind ... so that if there is any medium between a Rational animal and a Beast, the Hotantot lays fairest claim to the Species.”²⁷ Dampier does not use the term “creature” of any other people, but he repeatedly calls those of New Holland “poor Creatures.” The word had its present connotations (“animal” as distinct from “man” and “[w]ith qualifications expressing ‘compassion’ or ‘commiseration’”) at the time he was writing.²⁸ Having ranked the natives of New Holland below even the “Hottentots,”²⁹ Dampier had no ethnographic comparator except the fabulous monstrous races. The monstrous medieval hovers around both sides of the encounter here. Whereas Sloane 3236 says that “the women and Children would be frighted at our approach,”³⁰ so flawed, Dampier patronizingly remarks in *A New Voyage*, is the comprehension of the natives, that he and his company seem to them to be cannibals: “Some of the Women, and such People as could not go from us, lay still by a Fire, making a doleful noise, as if we had been coming to devour them” (467).

Contrary to his other topographic and ethnographic descriptions, the features of the landscape of New Holland are directly associated with the physical features of its people. Dampier is in line here with medieval encyclopedic thought, which made a direct connection between adverse physical environment (“either too dry, too wet, or too arid”) and monstrousness.³¹ For not only is New Holland dry and barren, it is above all the “Land of the Flies,” and in *A New Voyage*, the flies are inseparable from the freakishness of its people as the cause of their perpetual squint.

The fly, of course, is the archetypal antipodean in that it walks upside down, a point taken up by some later commentators on myths of the antipodes, but it also has associations with the demonic that go back to the ancient world.³² There was a popular belief for much of the seventeenth century that, along with ticks and fleas, flies spontaneously emerged from decaying flesh. But access to microscopes in the last decades of that century had begun to open up the science of entomology. People were equally intrigued by the delicate intricacy of the structure of the fly and repelled by its associations with excreta. In his *Theater of Insects* (1658), for example, Thomas Moffett considers the wonder of the fly’s wings and then abruptly denounces the species as “begotten of filth and nastiness, to which they

²⁷ Hodgen, *Early Anthropology*, pp. 417, 422.

²⁸ *Oxford English Dictionary*, s.v. *creature*, 2.a., 3.b. (b).

²⁹ On negative European accounts of the “Hottentots” in the seventeenth century, see Katherine George, “The Civilized West Looks at Primitive Africa: 1400–1800,” *Isis* 49/1 (1958): p. 68.

³⁰ Sloane 3236, fol. 222 v.

³¹ Simek, *Heaven and Earth in the Middle Ages*, p. 91.

³² See, for example, Ernest Scott, *A Short History of Australia* (Melbourne, 1927) at <http://www.gutenberg.net.au/shorthist.html>.

most willingly cleave, and resort especially to such places which are so unclean and filthy; unquiet are they, importunate, hateful, troublesome, tumultuous, bold, sawcy.”³³ We can, I think, assume that Dampier’s flies would have had demonic associations for the majority of his readers and that damns the natives of New Holland as well as their land—or at least contaminates them by association.

But what about the connection between New Holland’s flies and the “bad” eyes of its people? On the one hand, current thinking has it that the fly-borne disease trachoma did not exist in Australia prior to European settlement; equally, it has also recently been suggested that there is archaeological evidence of possibly chronic trachoma amongst Aboriginal skeletons, especially in the hotter, arid parts of the country.³⁴ And, of course, in the observation that “no amount of fanning would keep them away,” we recognize the first and wholly accurate reference to the Australian salute. It is difficult to decide on which side of the medieval-modern divide Dampier sits here. On the one hand, *A New Voyage* infuses New Holland’s inhabitants with medieval monstrousness; on the other, although we know New Holland’s association with flies to be irrefutable fact, Sloane 3236 makes no reference to them.

The longest part of the description of New Holland’s indigenous people in both Sloane 3236 and *A New Voyage* focuses on their dietary customs and suggests that, all protestations to the contrary, Dampier has directly echoed an identifiable written source, namely *The Fardle of facions*. “Their only Food,” he says in *A New Voyage*, “is a small sort of Fish,” which they strand by means of stone barricades at low tide; they also keep a lookout for cockles, muscles, and periwinkles, broil their catch on the coals, “eat it in common,” lie down until the next low-tide, and generally depend on “what Providence has bestowed on them” (465). Similarly, in Sloane 3236, “what the sea hath left behind … is all that they have to depend on for a lively hood some times they are bountifully rewarded for their paines and at other times providence seemes to be niggardly.”³⁵

The Fardle of facions classifies a number of the monstrous races of Africa according to what they eat. There are, for example, the *Acridophagie*, who live on locusts; the *Ryzophagi*, who subsist on the roots of reeds; and the coastal-dwelling *Ichthyophagi* (“fish-eaters”), originally so named and described by Pliny and Strabo. The *Ichthyophagi* in *The Fardle of facions* are said “under the shape of man, [to] live the life of beasts … goe naked all their life time,”³⁶ and have wives and children in common. Wholly dependant on Neptune’s bounty (“Of this haue thei always in store, accordaninge to the plenty that Neptune gyueth them”), they catch small fish, by stranding them with piles of stones at low-tide (in stormy

³³ Thomas Moffett [Muffet], *The Theater of Insects; or, Of lesser living Creatures* (London, 1658), p. 932.

³⁴ Stephen G. Webb, “Prehistoric eye disease (trachoma?) in Australian Aborigines,” *American Journal of Physical Anthropology* 81/1 (January 1990): pp. 91–100.

³⁵ Sloane 3236, fol. 221 v.

³⁶ Boemus, *The Fardle of Facion*, pp. G.i–ii.

weather they look for shellfish instead), broil them on rocks in the midday sun, enjoy their feast, and then fall indiscriminately upon their women. Their chief pleasure is the satisfaction of hunger. They have no language and communicate only by signs.

In both structure and detail at several key points, Dampier's account in *A New Voyage* of the indigenous people of New Holland bears a strong resemblance to Boemus's of the *Ichthyophagi*: the bestial simile; their nakedness and (possible) promiscuity ("[w]hether they cohabit one Man to one Woman, or promiscuously, I know not") (465); their method of catching fish (with shell-fish as an alternative); and their dependence on the bounty of Providence/Neptune. What is going on here? Perhaps Dampier thought that he had found a branch of the *Ichthyophagi*, but, having previously denied the existence of another monstrous race, the *Anthropophagi*, he was not going to say so, nor, as a committed empirical observer, was he going to make unwarranted allegations of licentiousness. The structural and verbal resemblances, in both Sloane 3236 and *A New Voyage*, between the natives of New Holland and Boemus's account of the *Ichthyophagi* point directly to Dampier himself as the borrower. But if Dampier had read *The Fardle offacions*, surely some of his readers would have, too, and may have noticed the striking correspondence? Perhaps they did, but more likely they did not. The allegations in the preface to *A Voyage to New Holland* of unacknowledged borrowings in *A New Voyage* refer specifically to "other Men's Journals" (lxviii); but *The Fardle of facions* was not another man's "Journal" in the mode of, for example, the *Journal into the South Sea* of Dampier's buccaneer contemporary, Basil Ringrose (1680–82), preserved in BL Sloane 48. Many new scientists, moreover, took pride in their lack of reading.³⁷

Curiously, there is in *A New Voyage* an abrupt change of tenor in the last lines of Dampier's description of New Holland and its people, in which "otherness" is replaced by the attributes of civilized (European) society: having collected their catch, they return to their "places of their abode," to the "old People" and "tender Infants," and enjoy a "plentiful Banquet" in which each member of the company, "as well the young and tender, the old and feeble," has a share. Orgiastic coupling is replaced by sentimentalized communalism and the rhetoric of medieval monstrosity by that of noble savagery:

...what the Sea leaves in their Wares; which, be it much or little, they gather up, and march to the placess of their abode. There the old People that are not able to stir abroad by reason of their Age, and the tender Infants, wait their return; and what Providence has bestowed on them, they presently broil on the Coals, and eat it in common. Sometimes they get as many Fish as makes them a plentiful Banquet but be it little or much that they get, every one has his part, as well the young and tender, the old and feeble (465).

³⁷ Hunter, *Science and the Shape of Orthodoxy*, p. 115.

With its pronounced aversion to its subjects' eccentricities of appearance, mannerisms, diet, and incoherence and incomprehensibility of speech, Dampier's writing here the embraces both the discourse of the medieval monstrous and the proto-colonial.³⁸ He marvels that what seems to him to be the normal order of things, that non-Europeans should act as servants to this motley company in return for "an old pair of Breeches ... a ragged Shirt ... a Jacket that was scarce worth owning; which yet would have been very acceptable at some places where we had been," should be so completely alien to these "poor Creatures" who appear to be wholly unimpressed by English cast-offs (468).

What, then, became the authoritative first report in English of the west coast of Australia and its people is not entirely the objective eyewitness account which it purports—and which it is widely (mis)represented—to be. A recent article in the *Proceedings of the California Academy of Sciences*, for example, calls "the scientific merits of his [Dampier's] writing extraordinary. He is always objective ... never embellishing or invoking supernatural causes for the natural phenomena that he encountered."³⁹ But he did establish enduring and unquestioned scientific credentials in his "A Discourse of Trade-Winds," the first published work to describe the relationship between winds and currents,⁴⁰ and he is rightly acknowledged by Alex George as Australia's first "natural historian."⁴¹ Dampier described Sturt's Desert Pea long before Sturt did, and some of the plant specimens which he brought back to England from his second voyage to New Holland are now in the Sherardian Herbarium in Oxford.⁴² His claims to empirical authority in *A New Voyage* are, nevertheless, undercut by a blurring of the line between eyewitness observation and pre-modern lore. This is not to say that Dampier did not see what he said he saw, but rather that his perception of it was framed by a horizon of expectation which did not exclude the possibility of antipodean monstrosity. Although he is no teller of travelers' fables by present standards of scientific reporting, and there is no doubt that he offers a topographically and botanically accurate picture of the north coast of Western Australia, what he says about its people is self-contradictory, unacceptably slanted, and sensationalized.

"As his book was very widely read," F.L. Wood commented nearly two-and-a-half centuries later in his history textbook *A Concise History of Australia*,

³⁸ On this topic see Andrea Ross-Reder, "Wonders of the Beast: India in Classical and Medieval Literature," in Timothy S. Jones and David A. Springer (eds), *Marvels, Monsters, and Miracles: Studies in the Medieval and Early Modern Imaginations* (Kalamazoo, MI: Medieval Institute Publications, 2002), pp. 60–61, 66.

³⁹ Gary C. Williams, "William Dampier: Pre-Linnean Explorer; Naturalist, Buccaneer," *Proceedings of the California Academy of Sciences* 55 (Suppl. II) (2004): p. 160.

⁴⁰ On this work, see Joseph C. Shipman, *William Dampier: Seaman-Scientist* (Lawrence, KS: The University of Kansas Libraries, 1962), pp. 8–23.

⁴¹ Alex S. George, *William Dampier in New Holland: Australia's First Natural Historian* (Hawthorn, Vic.: Bloomings Books, 1999).

⁴² *Ibid.*, p. 23.

“everyone came to think that Australia must be a very nasty place indeed,”⁴³ though not every explorer agreed entirely with Dampier’s impressions of its indigenous people. Joseph Banks conceded that he had Dampier-influenced presuppositions about the native people of Botany Bay,⁴⁴ but James Cook read what Dampier saw as misery rather than contentment untrammelled by European materialism. “From what I have seen of the Natives of New-Holland,” he wrote, “they may appear to some to be the most wretched people upon earth, but in reality they are far more happier than we Europeans.”⁴⁵ Cook’s observations remained unknown for another century and were then dismissed as “nonsense” by the mid-twentieth-century editor of his journals, J.C. Beaglehole (1955).⁴⁶

Diderot’s *Encyclopédie* of 1765 took its description of Nouvelle Hollande and its natives from Dampier, via Henri Busson.⁴⁷ The third edition of the *Encyclopaedia Britannica* (1797), by contrast, gave Dampier’s account of them only qualified endorsement and explicitly refuted his assertion about the latter’s poor eyesight on the basis of subsequent report: “The inhabitants of New Holland are by all accounts represented as the most miserable and savage race of mortals, perhaps, existing on the face of the earth Dampier asserts that they have a dimness of sight; though later navigators have determined this to be a mistake.”⁴⁸

The famous eleventh edition of the *Encyclopaedia Britannica* (1911) had no reference to Dampier in its entry for Australia, but his views prevailed in Australia itself, where, by the early years of the twentieth century, they had become solidly entrenched at that key point of ideological transmission. The history and social studies textbooks regurgitated Dampier’s description of the people of New Holland as an authoritative primary source for generations of students.

⁴³ F.L. Wood, *A Concise History of Australia*, rev. edn (Sydney: Dymock’s Book Arcade, 1943), p. 21

⁴⁴ “[S]o far did the prejudices which we had built on Dampier’s account influence us that ‘we fancied we could see their colour when we could scarce distinguish whether or not they were men’” (*Journal*, vol. II: 50), as quoted by Glyndwr Williams, “‘Far More Happier Than We Europeans’: Reactions to the Australian Aborigines on Cook’s Voyage,” *Australian Historical Studies* 19/77 (1981): p. 501.

⁴⁵ James Cook, *The Journals of Captain James: The Voyage of the Endeavour 1768–1771*, ed. J.C. Beaglehole (Cambridge: the Hakluyt Society at the University Press, 1955), p. 399, as quoted by Williams, “Far More Happier Than We Europeans,” p. 499.

⁴⁶ See the citations by Williams (“Far More Happier Than We Europeans,” pp. 449–500) from Beaglehole’s *Life of Captain James Cook* (1974).

⁴⁷ “Dampier, qui y passa en 1700, fait, dans son *voyage aux terres australes*, un détail de ce qu’il put voir dans les endroits de ce pays où il aborda. J’en ai transcrit cet extrait du *tome III. De l’hist. natur, de l’homme*, par M. de Busson.” Denis Diderot, *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers*, compact edition (Elmsford, NY: Pergamon Press, 1985), vol. 2, p. 246. Although he attributes his account to Dampier’s later work, *A Voyage to New Holland*, its source is in fact *A New Voyage*.

⁴⁸ *Encyclopaedia Britannica*, 3rd edn (Edinburgh: Printed for A. Bell and C. Macfarquhar, 1797), vol. 8, p. 621.

He [Dampier] was a man of keen observation, and delighted to describe the habits and manners of the natives During the time he was in Australia he frequently met with the blacks and became well acquainted with them. He gives this description of their appearance ... This account is, in most respects, correct, so far as it regards the portion of Australia visited by Dampier.⁴⁹

And G.V. Portus notes of the New Holland peoples:

... very poor specimens he [Dampier] found them. The land was barren; the flies were a pest; the people did not even know how to build huts nor grow plants. They lived on fish and water. More than two hundred years afterwards a writer spoke of our western deserts as "the land of sorrow, sin, sand, and sore eyes." Dampier does not note that the natives were sinful, but he certainly encountered the other three things in his first voyage to Australia.⁵⁰

First published in Melbourne in 1932, *Australia since 1606* went through 12 editions over the next 15 years and was a widely prescribed textbook throughout Australian schools. Of *Australia since 1606*, the *Australian Dictionary of Biography* accords that "[i]ts humour, gaiety and verve, and Portus's homely verses and sketches which illustrated it, delighted many children and teachers."⁵¹ Writing for school students more than a generation later, Ronald Laidlaw in *The Land They Found: Australian History for Secondary Schools* entitled the last section of his chapter on Dampier "What Dampier thought of Australia."⁵² It consists solely of two passages quoted from *A New Voyage*, headed, respectively, "We saw no trees that bore fruit or berries" and "The miserablest People in the World." These are followed by a series of ten questions, of which the ninth invites unquestioning reiteration of Dampier's views: "What did he think of the Australian aborigines"? Such views continued to be repeated in school textbooks into the 1990s, when what was probably their final reprise was banned—although not without opposition—by the Queensland Education Department, because "[t]he emphasis on physical features

⁴⁹ Alexander Sutherland and George Sutherland, *The History of Australia and New Zealand from 1606 to 1911* (Melbourne, Sydney, Adelaide, Brisbane: Longmans, Green & Co., and George Robertson & Co., 1917), p. 7.

⁵⁰ G.V. Portus, *Australia since 1606. A History for Young Australians* (Melbourne: Oxford University Press, 1943), p. 18. Portus's unidentified writer composes in the late-nineteenth-century ditty tradition "Ode to Westralia," which always begins with some variation of: "Land of Forrests, fleas, and flies, / Blighted hopes and blighted eyes, / Art thou hell in earth's disguise, / Westralia?" See *Land of Forests, Fleas and Flies*, ed. Peter Bridge with Gail Dreezens, <http://warrenfahey.com/bush-land-of-forests.htm>.

⁵¹ W.G.K. Duncan, "Portus, Garnet Vere (Jerry) 1883–1954," *Australian Dictionary of Biography*, 16 vols. (Melbourne: Melbourne University Press, 1988), vol. 11, p. 262.

⁵² Ronald Laidlaw, *The Land They Found: Australian History for Secondary Schools* (Melbourne: Macmillan, 1979).

is degrading and enforces a stereotyped view of Aborigines. It is also presented as a credible and authoritative description.”⁵³

There is, of course, something strikingly memorable about that degrading judgment “the miserablest People in the World.” This and other textbook quotations from *A New Voyage* reinforced notions of indigenous inferiority which gave European settlers at least indirect justification for the dispossession, and even eradication, of the “monstrous.” That is perhaps not the wildly sweeping statement which it might seem, for it relates directly to the late medieval/pre-Enlightenment epistemological tightrope upon which Dampier teeters.⁵⁴ Whereas Augustine had declared the monstrous races to be descended from Adam and therefore part of the divine plan, Renaissance Humanism was more inclined to see the monstrous races and “monstrous” births as God’s post-lapsarian curse, and strong views were expressed in the seventeenth century about the desirability of their exclusion—or active elimination—from humanity.⁵⁵ Things did not, as Val Flint has remarked, bode well for the imminent “discovery” by Europeans of the inhabited Antipodes.⁵⁶

Dampier had hoped to find *Terra Australis Incognita*. Instead he found only the rocky coast of Western Australia. It was a disappointing reversal in every way of his expectations.⁵⁷ Whereas two centuries earlier, Columbus had drawn upon the rhetoric of paradise to describe Hispaniola, Dampier’s disappointment with the barrenness of New Holland, with its pesky flies and the disinclination of its people to engage in menial service, evokes hints of the hellish. In the subsequent incorporation of that description into the history and social studies curriculum, we have what appears to be the perfect textual illustration of the ramifications of Flint’s comment that “the reduction of the savage to a level on the scale of being lower than that of man does indeed seem to have accompanied the discovery of lands previously thought to be inaccessible.” She also observes that the atrocities which followed in the wake of European political and economic expansion would not have happened had Augustine’s views on the brotherhood of humankind survived the Middle Ages.⁵⁸

⁵³ *The [Brisbane] Courier-Mail*, 24 April 1992. Ryan reports on this controversy in *The Cartographic Eye*, p. 3.

⁵⁴ See Geraldine Barnes and Adrian Mitchell, “Measuring the Marvelous: Science and the Exotic in William Dampier,” *Eighteenth-Century Life* 26/3 (Fall 2002): pp. 45–57.

⁵⁵ See Flint, “Monsters and the Antipodes in the Early Middle Ages and Enlightenment,” *Viator* 15 (1984): pp. 65–80.

⁵⁶ “... one might well at least begin to ask whether their admission ... into the realm of the scientifically possible boded very well for the postulated inhabitants of the supposed Antipodes themselves.” See Flint, “Monsters and the Antipodes,” p. 79.

⁵⁷ On this topic see, for example, Geraldine Barnes and Adrian Mitchell, “Passing Through Customs: William Dampier’s Medieval Baggage,” in Stephanie Trigg (ed.), *Medievalism and the Gothic in Australia* (Turnhout, Belgium, and Melbourne: Brepols Publishing and Melbourne University Press, 2005), pp. 131–45.

⁵⁸ Flint, “Monsters and the Antipodes,” p. 79.

The widespread use these days by Australian politicians, journalists, cartoonists, and newspaper letter writers of “medieval” as a general term of condemnation for anything deemed cruel, primitive, tyrannical, or generally unenlightened adds a further layer of irony to the 300-year history of Dampier’s description of New Holland. For whereas the Middle Ages was, in fact, tolerant and inclusive of human difference, the seventeenth century was inclined to condemn all forms of monstrousness or deformity as a manifestation of the wrath of God. By present standards of scientific reporting William Dampier’s account of New Holland in *A New Voyage* is a fundamentally damning portrait of its landscape and people, which bears the unmistakable imprint of the monstrous antipodes.

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Chapter 6

Writing “Science Fiction” in the Shadow of War: Bodily Transgressions in Cavendish’s *Blazing World*

Holly Faith Nelson and Sharon Alker

Margaret Cavendish, the Duchess of Newcastle, has long been known for her social and authorial transgressions. Though she described herself as shy and retiring by nature, her conduct and writings testify to her inclination to rebel against more than a few of the customs and strictures of her age (see Figure 6.1). The sustained critical attention to her life and works over the past two decades has accentuated her inventive, enigmatic, and often self-consciously transgressive literary practices, which were stimulated, in part, by the violent and volatile age in which she lived and wrote.¹ Nigel Smith, for example, witnesses the death of the tradition of the love lyric in a few of Cavendish’s poems, linking her transformation of the form to the disruption, disintegration, and reconstitution of literary genres during the Civil War and Interregnum.² No doubt Cavendish’s habit of innovation, generic and otherwise, was influenced by her encounters with the brutality and, paradoxically, liberating energies of war, which left her a “loyalist castaway” on the shores of the Continent where her literary voice was born.³

The transgressive quality of Cavendish’s writings might also be attributed to the related “epistemic predicament” of the mid-seventeenth century, when knowledge formation was in extreme flux.⁴ New scientific discourses rooted in “identity and difference” challenged the Renaissance *episteme* of resemblance

¹ Cavendish’s aesthetic experimentation has been addressed, for example, in a series of articles in Line Cottagnies and Nancy Weitz (eds), *Authorial Conquests: Essays on Genre in the Writings of Margaret Cavendish* (Madison, NJ: Fairleigh Dickinson University Press, 2003).

² Nigel Smith, *Literature and Revolution in England, 1640–1660* (New Haven: Yale University Press, 1997), p. 259.

³ Tanya Caroline Wood, “The Fall and Rise of Absolutism: Margaret Cavendish’s Manipulation of Masque Conventions in ‘The Claspe: Fantasmes Masque’ and *The Blazing World*,” *In-between: Essays & Studies in Literary Criticism* 9/1–2 (2000), p. 297.

⁴ Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: University of Chicago Press, 1995), p. 245. Shapin does not, as we do here, associate the “epistemic predicament” with the Civil War.



Fig. 6.1

Portrait of Margaret Cavendish from the frontispiece to *The Worlds Olio* (1655). This item is reproduced by permission of The Huntington Library, San Marino, California. RB 120142.

and similitude;⁵ colonial narratives pointed to the relativism of British truth claims; social and economic mobility challenged traditional notions of identity formation; radical Protestant sectarianism destabilized the state-sanctioned ecclesiastical formation; and parliament resisted monarchical authority, thereby interrogating institutions long associated with divinely inspired knowledge and truth. This epistemic instability played a part in the onset of the Civil War, which splintered both ideas and bodies, intensifying the climate of uncertainty.

Given the association of an epistemic shift, political upheaval, and intestine war, it is no surprise that Cavendish, a politically conservative member of the aristocracy, would resist novel ways of knowing and being in the world. Many of her works register an intense aversion to and distrust of new scientific models and methods, a subject which has received significant attention in recent years. However, as a marginalized female intellectual, Cavendish also benefits from the destabilization of earlier theories of knowledge production and seeks in this time of transition to participate in scientific conversations to make sense of and reshape the post-civil war world based on her own observations—pushing, transgressing, and blurring boundaries as needed. As is well documented, Cavendish's fascination with scientific ideas drove her to seek out an invitation to the Royal Society, “the institution for scientific experimentation … responsible for the complex phenomenon we have come to know as the Scientific Revolution,” where she received “a private exhibition of the period’s most important and celebrated experiments.”⁶ It also inspired her formulation of her own concept of organic materialism, which optimistically posited (in response, perhaps, to years of personal and national turbulence) that “the conservation of matter, the empathy of its parts for one another, and the transformation of constantly changing forms, results in an ordered, harmonious universe.”⁷

Cavendish’s utopian romance, *The Blazing World*, published in the same volume as *Observations on Experimental Philosophy* in 1668,⁸ testifies to Cavendish’s ambivalent reaction to emerging scientific opinions and practices, which she seems unable to disentangle from memories of war, especially war’s transgression of bodily coherence and unity.⁹ No doubt, *The Blazing World*, a

⁵ Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Routledge, 2002), p. 54.

⁶ John Rogers, *The Matter of Revolution: Science, Poetry, and Politics in the Age of Milton* (Ithaca: Cornell University Press, 1996), pp. 178–90.

⁷ Lisa T. Sarasohn, *The Natural Philosophy of Margaret Cavendish* (Baltimore: Johns Hopkins University Press, 2010), p. 139.

⁸ *The Blazing World* was initially published alone in 1666.

⁹ Even in *Observations upon Experimental Philosophy*, Cavendish tropes her scientific thought process (an embodied experience according to her theories on matter) as a civil war of sorts. “When I was setting forth this book … a dispute chanced to arise between the rational parts of my mind concerning some chief points and principles in natural philosophy; for, some new thoughts endeavouring to oppose and call in question the truth of my former conceptions, caused a war in my mind: which in time grew to that

work patently engaged with recent scientific debates, serves as a fictional space for Cavendish to render concrete her own scientific views based on “rational and judicious observations.”¹⁰ As Eve Keller argues, the utopian romance “share[s] significant common ground with the *Observations*, treating many of the same issues and offering many of the same arguments.”¹¹ In both texts, Cavendish discloses elements of her natural philosophy, attending, for instance, to the production, nature, operation, boundaries, and dissolution of diverse material bodies; and in both, she scrutinizes the theories, methods, and tools of the new science.¹²

While *The Blazing World*, like other Cavendish works, disparages certain scientific propositions and practices, we will argue that the first section of her narrative revels in the potentiality of the newly liberated imagination, the product of an active engagement with recent scientific notions, which allows Cavendish to envision possibilities that expand the boundaries of the human body. This potentiality is embodied in the fabulous hybrid entities that the protagonist encounters at the borders of this new world. At the same time, the language of science and the related discourse of travel are inextricably marked in *The Blazing World* by the tensions of the Civil War. The violence of this recent conflict, we will suggest, leads Cavendish to explore in this early work of “science fiction” the ways in which new fields of knowledge can be co-opted by political and military forces not to enhance and extend the capacities of the human body to benefit society, but to create new military technologies that destroy bodies and threaten the social order.¹³ The disruptive energies of dead, decaying, and robotic bodies that lurk in the shadows of *The Blazing World*, associated with human brutality and cruelty, gesture toward the potential threat of new modes of knowledge production and robustly resist the tidy conclusions of scientific harmony that Cavendish upholds in theory.

The Blazing World tells of a young woman kidnapped by a merchant and taken aboard a ship that quickly sets out to sea. Angered by the young victim’s dilemma, the heavens provoke a storm that causes the vessel to run aground in the North Pole. All on board except the young woman freeze to death. The vessel then enters another world in which the young woman is rescued by a number of

height, that they were hardly able to compose the differences between themselves, but were in a manner necessitated to refer them to the arbitration of the impartial reader.” See Cavendish’s *Observations upon Experimental Philosophy*, ed. Eileen O’Neill (Cambridge: Cambridge University Press, 2001), pp. 41, 23.

¹⁰ Ibid., p. 4.

¹¹ Eve Keller, “Producing Petty Gods: Margaret Cavendish’s Critique of Experimental Science,” *English Literary History* 64/2 (1997): p. 461.

¹² Ibid., p. 461.

¹³ “Science fiction” is placed in quotation marks because the term is used anachronistically. The *OED* gives 1851 as the year the term first appeared in print. We apply the term to *The Blazing World* because the modern definition of science fiction well describes it: “Imaginative fiction based on postulated scientific discoveries or spectacular environmental changes, freq. set in the future or on other planets and involving space or time travel” (*OED*).

hybrid creatures, at once animal and human. They present her to the Emperor, who marries her at once and grants her "absolute power" over this ontologically complex world.¹⁴ The new Empress is introduced to, and studies, different facets of the society she now rules, altering some of its institutions and practices as she deems fit. As her studies grow more intense, the Empress longs for a scribe to support her scholarly activities, and the soul of the Duchess of Newcastle is summoned to act in this capacity. The two women fervently discuss a range of philosophical, scientific, and political issues until their intellectual conversations are interrupted by news that war now rages in the Empress's world of origin. She readily brings aid to her people, which results in a considerable and spectacular military victory. The Empress then returns to the Blazing World, where she happily celebrates her success.

The young woman, as she enters the new world and is exposed to many new scientific wonders, appears to have crossed into a utopian space, with a central kingdom aptly named "*Paradise*" (159).¹⁵ Although populated by a range of curious beings, the hybrid creatures—half beast, half human—assume the most prominent role in her description of this world, and their initial function is salvific inasmuch as they have saved the young woman from the brutal stench-filled consequences of masculine violence. She is impressed by their amiable nature, reflected not only in their outward showing of "respect and civility," but also in their peaceable use of technology (158). The narrator relates that they placed in their ships

a certain Engine, which would draw in a great quant[it]y of air, and shoot forth wind with a great force; this Engine in a calm, they placed behind their ships, and in a storm, before; for it served against the raging waves, like Canons against an hostile army, or besieged Town; it would batter and beat the waves in pieces, were they as high as steeples; and as soon as a breach was made, they forced their passage through.... and as for Guns, there was no use of them, because they had no other enemies but the winds. (158–9)

Cavendish makes clear that the beast-men have the scientific capacity to create war technology, but not the inclination. There is no need for it as the relations between various hybrid species, such as the fox-men, the bird-men, the satyrs and the like, and the other inhabitants of the world are cordial. Hybrid beings and

¹⁴ *The Description of a New World, Called the Blazing World*, in Sylvia Bowerbank and Sara Mendelson (eds), *Paper Bodies: A Margaret Cavendish Reader* (Peterborough: Broadview, 2000), p. 162. All references to *The Blazing World* are to this edition and will be cited in the text by page number.

¹⁵ Laura Hollsten explains that "the idea that the paradise myth might become a reality was nurtured" in the Renaissance. See Hollsten's *Knowing Nature: Knowledge of Nature in Seventeenth Century French and English Travel Accounts from the Caribbean* (Abo: Abo Akademi, 2006), p. 94. The tropical islands of the Caribbean, for example, were often described in the language of "Paradise found" and these islands were populated, travelers insisted, with hybrid creatures, including the half plant, half ovine "Scythian lamb" which grew on a stalk, or so Hans Sloane told the Royal Society in 1698. See Hollsten, pp. 95, 191–2.

hybrid states in this new world, therefore, initially alleviate the trauma she has recently suffered in her own world, just as scientific innovation appears to offer the potential of progress as a means to mitigate residual suffering from the Civil War.

In representing hybrid creatures as figures of erudition, potential, and peace, Cavendish seems to skirt the problematic history of the “monster races” in imaginative literature. As Sarah Salih has argued, “the monster, or hybrid,” to makers of Christian religious art, was often “a sign of improper representation and improper worship.”¹⁶ No doubt, Cavendish had in mind the reasonable hybrid creatures that surface in medieval and early modern travel literature. Salih maintains, for example, that the hybrid cynocephali or dog-men in Sir John Mandeville’s *Travels*, read as a romance in the early modern period, are “examples of the plentitude of the created world,” and “are reasonable” beings.¹⁷ While some of them have “alarming habits,” for example, the cynocephali “wear only loincloths and … eat their prisoners,” Mandeville presents these tendencies as no more disturbing than the impulses of some humans, and the dog-men, in fact, are often judged less harshly.

The cross-species that populate the Blazing World, however, differ from those in Mandeville’s *Travels*, insofar as Cavendish’s hybrids are superior to humans in a number of ways, and this superiority is linked to their bestial bodies. They have enhanced sensory abilities and knowledge of the space in which they operate, a superiority based on their brutish form. This conception of animals as more exceptional than humans in some respects is explored elsewhere by Cavendish. In *Philosophical Letters* (1664), she notes that animals may exhibit greater knowledge in certain areas, despite the conclusion of most natural philosophers that, cognitively speaking, “man doth excel all other animals”:

[F]or what man knows, whether fish do not know more of the nature of water, and ebbing and flowing, and the saltiness of the sea? or whether birds do not know more of the nature and degrees of air, or the cause of tempests? or whether worms do not know more of the nature of earth, and how plants are produced? Or Bees of the several sorts of juices of flowers, than men.¹⁸

In fashioning the beast-men of the Blazing World, Cavendish takes this philosophical position a step further by assigning the hybrid creatures general human attributes as well as specialized animal traits, thereby granting them an important and central role in the operation of the Blazing World. Here Cavendish appears to subvert her own claims in the *Observations* that humans cannot and

¹⁶ Sarah Salih, “Idols and Simulacra: Paganity, Hybridity and Representation in Mandeville’s *Travels*,” in Bettina Bildhauer and Robert Mills (eds), *The Monstrous Middle Ages* (Cardiff: University of Wales Press, 2003), p. 115.

¹⁷ Ibid., pp. 127–8. Cavendish identifies the first section of her work as a romance, though it is also a travel narrative.

¹⁸ Margaret Cavendish, *Philosophical Letters, or Modest Reflections upon some Opinions in Natural Philosophy* (London: [s.n.], 1664), p. 40.

should not attempt to embrace animal characteristics that are not innate. She comments, in relation to the possibility that man might fly, that "there is no art that can make a four-legged creature imitate the actions of man, no more than art can make them have or imitate the natural actions of a bird: For art cannot give new motions to natural parts, which are not proper or natural for them."¹⁹

Yet in her romance, Cavendish appears almost to preempt Walter Ong's claim that "[t]echnologies are artificial, but ... artificiality is natural to human beings. Technology, properly interiorized, does not degrade human life but on the contrary enhances it."²⁰ Each kind of hybrid creature, at the time the young traveler enters the world, is slotted comfortably in an appropriate occupation, "a profession as was most proper for the nature of their species" (163), implying that their enhanced bodies allow for useful specialty skills. The fabulous creatures, then, seem to embody a human potentiality that exceeds the existing human body in a productive and generative way.

The emphasis on the peaceful functions of hybridity also differentiates Cavendish's travel narrative from that of Mandeville. While some of his hybrid creatures seem gentle, as is the satyr who seeks prayer from a hermit, others are warlike. The cynocephales, in particular, "are big in stature and good warriors; they carry a large shield, which covers all their body, and a long spear in their hand, and dressed in this way they go boldly against their enemies."²¹ The young kidnapped woman in *The Blazing World* carries expectations of this sort of violence when she first encounters the bear-men. The narrator explains that she was "extreamly stricken with fear, and could entertain no other Thoughts, but that every moment her life was to be a sacrifice to their cruelty"; yet they are not only civil to her, but also speak to each other with civility, "for they all understood each others language" (157–8).

As the young woman and the reader enter the Blazing World, therefore, hybridity is associated with peace and potential and exists in a landscape in which limiting categories are challenged and exceeded. The epistemological and ontological uncertainty of mid-seventeenth century Britain, deepened by the Civil War, had made possible new ways of thought that exceeded previous categories of identity, even those that defined the human body. Thus, Rachel Trubowitz concludes that hybridity in the Blazing World "accommodates ... desire," unlike most utopian writing of the period which "domesticate[s] human and physical nature into a rationalised cultural grid that can be easily managed and patrolled."²²

¹⁹ Cavendish, *Observations*, p. 64.

²⁰ Walter J. Ong, *Orality and Literacy: The Technologizing of the Word* (New York: Methuen, 1982), p. 82.

²¹ *The Travels of Sir John Mandeville*, trans. C.W.R.D. Moseley (London: Penguin, 1983), p. 134.

²² Rachel Trubowitz, "The Reenchantment of Utopia and the Female Monarchical Self: Margaret Cavendish's *Blazing World*," *Tulsa Studies in Women's Literature* 11/2 (Fall 1992): pp. 237, 230.

This certainly seems to be true of the early optimistic treatment of hybridity in the text, for Paradise at the inception of the work is, as Trubowitz proposes, “the locus of marvelous and inexplicable natural and cultural transformations” in which “logically and ideologically incompatible ideas and experiences dissolve and new rationally unthinkable and culturally transgressive alliances emerge.”²³

At the same time, however, *The Blazing World* registers an intense dread of hybrid forms. The Civil War, after all, had also shown that the result of challenging and overturning solid categories of knowledge could be chaos and countless corpses. Combat called into question the boundaries and limits of the human body in an entirely different way from the fruitful hybridity discussed thus far. In texts written during and soon after the Civil War, the border between the human and the bestial is often blurred by the broken and mutilated bodies of soldiers who appear and act less than human, as Diane Purkiss has recently argued.²⁴ Although Cavendish claims that the Blazing World she creates is an Edenic space of human potential and ecological plenitude that crosses multiple borders and boundaries and values concord and tranquility over war, the fractured decaying body, a ghostly shadow of the hybrid body, repeatedly rises to the surface to demonstrate that even the fanciful world of the imagination, a site of scientific possibility, cannot escape the ghastly violence of the real world she inhabits, a world in which the actual bodies of interred members of her family had been desecrated in the midst of wartime hostility.

While in accordance with the conventions of utopian fiction, the protagonist in the opening scene of *The Blazing World* withdraws from a volatile and violent world and enters a paradisiacal landscape, even on the borders of the Blazing World, she must confront decaying cadavers—alternative hybrids of a sort. The young captive finds herself trapped on the icy seas with the frozen bodies of her abductor and the ship’s crew. When the boat slips into the tropical paradise the corpses begin to putrefy and the woman is compelled to take cover in her cabin to hide from the nauseating stench of death. Fortunately, the hybrid beings then appear to rescue her from the ship, creatures shaped “like Bears, onely they went upright as men” (156). Yet, arguably, they are not the only hybrid entities in this scene.

Susan Zimmerman has recently argued that the corpse, in signifying “the body/not body,” is “the ultimate hybrid, the utmost in marginality situated at the furthestmost border.”²⁵ As Julia Kristeva maintains, “the corpse, the most sickening of wastes, is a border that has encroached upon everything … The corpse … is

²³ Ibid., p. 232.

²⁴ In *Literature, Gender and Politics during the English Civil War* (Cambridge: Cambridge University Press, 2005), for example, Diane Purkiss discusses Edmund Ludlow’s need to operate outside conventions of civilized (human) nature. Seriously injured and left to die on the battlefield at Edgehill, he must “draw a dead body upon him for warmth,” p. 33.

²⁵ Susan Zimmerman, *The Early Modern Corpse and Shakespeare’s Theatre* (Edinburgh: Edinburgh University Press, 2005), p. 12.

the utmost of abjection. It is death infecting life.”²⁶ Predictably, the literature of the Civil War is littered with corpses, signifying the infection of the nation, according to both Purkiss and Smith. The popularity of Lucan’s *Pharsalia* in the civil-war period, Smith proposes, is due to the “[i]mages of slaughter and carnage” that dominate the work, appealing to a reader faced with the consequences of brutal military action.²⁷ Lucan’s work lingers over broken and bloodied bodies, particularly moments of dismemberment and the process of dying. In the midst of a naval battle in Book III, for example, we read,

[Catus] is pierced, back and chest alike, by two spears thrown simultaneously. Inside his chest, iron collides, and his blood stops, undecided from which wound it should flow, until copious gore thrusts out both javelins at once, dividing his soul and splitting his death between two wounds.²⁸

Modeled on *Pharsalia*, Abraham Cowley’s *A Poem on the Late Civil War* compels readers to witness not only the slaughter, but also to linger on the process of death:

How many in thy Streets fell grovelling down.
Witness the *Red Coats* weltering in their Gore,
And died anew into the Name they bore.
Witness their men blowed up into the Air,
All Elements their Ruins joyed to share.²⁹

The battlefield, scattered with the broken bodies of men, and the texts that work to represent it, Purkiss claims, “are haunted by the chaos, dissolution of boundaries, filth, loss of sight, loss of control,” and the loss of an individual self—signified by the corpse—is echoed by the loss of a national identity in a civil war.³⁰

While the cadavers in *The Blazing World* are framed by a different context, one that involves threatened rape and natural disasters, they remind the reader, particularly the post-civil war reader, of the masculine violence and decaying bodies common to war literature. The corpse is the underbelly of hybridity. It breeds disgust and horror even after death, when the repulsive stench still manages to disturb the young woman who must go to the deck of the ship to try to escape it. Her attempt to avoid the pervading insistence of the smell, the lingering remembrance of the past, likely causes her to be seen by the hybrid creatures.

²⁶ Julia Kristeva, *Powers of Horror: An Essay on Abjection* (New York: Columbia University Press, 1982), pp. 3–4, as qtd in Zimmerman, *The Early Modern Corpse*, p. 4.

²⁷ Smith, *Literature and the English Revolution*, p. 205.

²⁸ Lucan, *Pharsalia*, trans. Jane Wilson Joyce (Ithaca: Cornell University Press, 1993), p. 78, lines 587–91.

²⁹ Abraham Cowley, *A Poem on the Late Civil War* (London: printed [for Langley Curtis], 1679), p. 19.

³⁰ Purkiss, *Literature, Gender and Politics*, p. 34.

Fleeing hybridity in one form, she encounters it in another. The world that the young woman leaves, then, appears to represent civil-war England. She is obliged to immigrate to an unfamiliar land, just as Cavendish enters her imagined one, and the remnants of violence that remain seem to be destroyed when her rescuers sink the boat, “together with the dead men” (156). Yet, as Cavendish is well aware, the ramifications of horror and brutality are not so easily evaded.

The violence left behind by the young woman—and Cavendish—continues to trouble the text, and the playful, productive treatment of hybridity, in several ways. While the abducted woman escapes the corpses of her male captors at the inception of the work, the dismembered male body remains and appears to be the cost of the peace she greatly values. The Priests and Governors of the *Blazing World* are “made Eunuches” (164). The justification for their state is shared with the young woman, now Empress, during a conversation about the many preemptive measures taken to avoid factionalism, the cause of “open wars” (164). Thus, it seems that castration exists for the same reason that the state enacts few laws, endorses a strict monarchical form of government, and permits only one religion. However, this particular violent act especially disturbs the Empress. When she asks why this practice has been instituted, she is told that it is intended to keep priests and governors from marrying, “[f]or Women and Children most commonly make disturbance both in Church and State,” and that even if the family of the nobility and clergy were kept from direct power “yet are they so prevalent with their Husbands and Parents, that many times by their importunate persuasions, they cause as much, nay, more mischief secretly, then if they had the management of publick affairs” (164–5). Yet surely there are other solutions to such concerns that are far less radical and violent than castration. Why dismember men for the alleged future misbehavior of women and children? The eunuch, male and yet not male (like the decaying corpse), is a mutated shadow of the hybrid creatures in the narrative, disturbing the very civility and peace his dismembered body is meant to facilitate.

Purkiss argues that it was the fear of “of dismemberment, dissolution and hence loss of firmness, resolution, control” that motivated men to violence in war: “The feared Other could only be expelled from the self by a violent rite.”³¹ Cavendish inverts this concept in *The Blazing World* by having members of society dismember its male leaders, with the exception of the Emperor, thereby removing the potential instability that leads to war. In other words, by projecting violence inwards, the *Blazing World* avoids it being directed outwards. After all, if fighting is, as Purkiss persuasively posits, an attempt to maintain masculine identity, then removing that identity would seem to remove the impetus to factionalism and war. However, while their disturbing hybrid condition appears to promote order, the violated damaged body cannot help but counteract, to a degree, their peaceful utopian function.

³¹ *Ibid.*, p. 41.

In fact, beneath the surface of the *Blazing World*, there is a persistent anxiety about the fragility of peace that ultimately prevents the imaginative energy of the sciences from coming to fruition in a productive manner. This anxiety is evident in the narrator's inconsistent account of the absence of war in the *Blazing World*. The narrator initially suggests that a stable monarchy has prevented military aggression of any sort, noting that the people all submitted to "one Emperor ... which made them live in a continued peace and happiness, not acquainted with other foreign wars, or home-bred insurrections" (160). Shortly thereafter, however, the narrator suggests that it is geography (rather than unity) that keeps the Emperor's realms free from attack, adding that the young woman was taken into the Emperor's part of the world through a narrow passage, the only entrance to his realms. The area, therefore, was "secure from all foreign invasions, by reason there was but one way to enter, and that like a Labyrinth" (160). Even in an imagined world that the narrator insists is a peaceful one, the fear and possibility of foreign invasion is deemed to be present, at least in the mind of the narrator. The narrator's fixation on war is further revealed by the description of the boat belonging to the hybrid creatures. Why describe a boat at sea in terms of "besieged Town[s]" or "hostile Arm[ies]" unless the discourse of war is foremost in one's mind (158)? Thus, as readers leave what Cavendish calls the "romance" portion of her narrative, and enter its "philosophical" section, they have been alerted to undercurrents of violence in this apparent Paradise, and the equilibrium of the world, before long, will become even more disturbed.

In the second portion of *The Blazing World*, it is the Empress who is self-admittedly the one who disturbs this peaceful "brave new world" in which she finds herself.³² This is less an affirmation of the belief in the disruptive effects of women than a gesture toward the Empress's origins and those of the advisor she selects: the fictional Duchess of Newcastle, who appears in spirit form to commune with and guide her.³³ Cavendish emphasizes that both women come from a world marked by violence and their quest for socio-political power has left them gravely fearful of social disorder and therefore highly sensitive and reactive to discord. In response, they turn to natural philosophy and new technologies in an

³² Frequently influenced by the plays of Shakespeare, Cavendish appears to share both the optimism of Miranda in *The Tempest* who declares to her father, "Oh, brave new world, / That has such people in't!" and the skepticism of Prospero, who responds "'Tis new to thee" (V, i, 185–7). See *Shakespeare's Romances and Poems*, ed. David Bevington (New York: Pearson, 2007), p. 1601. Sarah Hutton points to the tension in Cavendish's work between a satirical impulse to expose "the futility of much philosophical speculation, and the sheer impracticality of much scientific investigation" and an intensely serious desire to promote an ideal "scientific program." See Hutton's "Science and Satire: The Lucianic Voice of Margaret Cavendish's *Description of a New World Called the Blazing World*," in Cottagnies and Weitz (eds), *Authorial Conquests*, pp. 168, 170.

³³ Cavendish's attitude towards women in *The Blazing World* has been most recently discussed by Angus Fletcher in "The Irregular Aesthetic of *The Blazing World*," *Studies in English Literature* 47/1 (Winter 2007): pp. 123–41.

effort to control their surroundings, but such a choice ultimately damages rather than supplements the hybridity in the *Blazing World*.

The focus of the Empress's ambition and fear is the beast-men, a significant choice given the many different inhabitants of her world. She pays little attention to the Emperor and the princes of imperial blood, who appear to be fully human, or to the "ordinary sort of men" that are "of several Complexions; not white, black, tawny, olive—or ash-coloured; but some ... of an Azure, some of a deep Purple, some of a Grass-green, some of a Scarlet, [and] some of an Orange-colour ..." (163).³⁴ Although the Empress does reform religion, an act that affects all of the inhabitants of the *Blazing World*, the majority of her reforms relate to the specific activities of the hybrid beings, which consume the greatest portion of the narrative. As a result of these reforms, the hybrid creatures, once emblems of plenitude and peace, are reduced to the mere apparatus of monarchical power. They will become proto-cyborgs, technologically advanced instruments of war that allow nations to achieve empire without human loss (at least on their side). Such a development relies on mid-seventeenth-century military discourse, in which scientific and technological advancements are conflated with what Barbara Donagan has recently called the "art and science of war."³⁵ While, as she reminds us, the English Civil War "did not produce notable military innovations," it did lead to some ingenious discoveries. John Gwyn, for example, devised from a "a flash of fire" and "a perspective glass" a formula that allowed him to calculate "the height of musket loopholes so that he could send in his men to deliver decisive volleys of fire"; and "[i]ngenious soldiers found unconventional ways to exploit unpromising military matériel, as when the royalists laid a train of powder on the sand near Exmouth, lit it, and 'scalded' pursuing parliamentarians."³⁶ This connection between new technologies and warfare seems to come to the fore, specifically in relation to hybrid bodies, in the second part of *The Blazing World*.

There are two steps involved in the transmutation of hybridity from a productive to a destructive state in the narrative. The first is the Empress's decision to introduce newly emergent classification systems that strictly delimit species (by difference). Schools are erected and societies established that she believes will "help" the hybrid creatures further their studies in "Arts and Sciences" (163). This might seem to be a particularly pro-scientific move, and indeed Lisa T. Sarasohn has argued that the beast men "demonstrate that experimenters, chemists, and astronomers can function intelligently and usefully if they are governed by a

³⁴ Though Cavendish identifies differences in both race (the men of various colors) and species, she highlights the Empress's relations with those of a different species, as Sujata Lyengar observes in "Royalist, Romancist, Racialist: Rank, Gender, and Race in the Science and Fiction of Margaret Cavendish," *English Literary History* 69/3 (Fall 2002): pp. 649–72.

³⁵ Barbara Donagan, *War in England: 1642–1649* (Oxford: Oxford University Press, 2008), p. 34.

³⁶ *Ibid.*, pp. 2–3, 91.

wise and ambitious ruler.”³⁷ However, others have also convincingly identified this section of the narrative, composed of the Empress’s lengthy conversations on natural philosophy with the hybrid men, as a “hostile, defensive response to both the technology and methodology of the new sciences.”³⁸ Such readings distance the work from the world of martial affairs. Our focus, however, is not on Cavendish’s granting of the beast-men—the emblem of ecological organicism—a central role in this critique. Rather, what concerns us is the Empress’s fear that the conflicts between the beast-men, caused by the very rational debating system she instituted to cultivate the production of new knowledge in both the arts and sciences, will “break out in open Rebellion,” a belief reinforced by the Duchess of Newcastle’s warning that the “factions” may “break out into open Wars” (229–30). Disputes do occur immediately after the formation of the societies. The bird men disagree about how the heat of the sun functioned (166), the bear men disagree about the relationship between the sun and the moon (169), and the ape men disagree about the nature of transmutations (182). Differences are ultimately reinforced both within and between academic institutions. When she feels disquieted by any of these disagreements, the Empress imposes certain regulations on the societies. She tells the Logicians (the Jack-daw Men) that their quarrels obscure truth, adding that they must “confine … [their] disputations to … [their] Schools, lest besides the Commonwealth of Learning, they disturb also Divinity and Policy, Religion and Laws, and by that means draw an utter ruine and destruction both upon Church and State” (191).

Although Restoration readers were acutely aware of the danger of subversive language, and though utopias typically endorse maintaining the political order, it remains unclear whether Cavendish wants her readers to believe that the Empress’s strict regulation of the disputing societies is reasonable.³⁹ After all, she does not describe any physical threat posed by the beast-men. The drastic nature of the Empress’s preemptive action suggests that she is motivated by her own fear and anxiety about the relationship between knowledge production and violence and perhaps also about the institutional power that may become invested in new organizations, scientific or otherwise. The other precautions that she takes are

³⁷ Sarasohn, *The Natural Philosophy of Margaret Cavendish*, p. 165.

³⁸ Elizabeth Spiller, *Science, Reading and Renaissance Literature: The Art of Making Knowledge, 1580–1670* (Cambridge: Cambridge University Press, 2004), p. 175. Spiller claims, for example, that Cavendish works to “imagine for readers a powerful and vivid alternative to a visually based scientific practice” in her use of people of many colors, and that she strives to “discredit astronomy’s power,” replacing the “methodology of the new sciences” with “pleasant, speculative, and sometimes fanciful ‘conversation’ between rational souls” (pp. 171, 174, 175). As earlier noted, it is to be expected that Cavendish would create an alternative universe that defies the discourse of the new empirical science when she was excluded from “the gentlemanly culture of honor and truth” that is the Royal Society. See Shapin, *A Social History of Truth*, p. 407.

³⁹ The Empress’s effort to “improve” the utopia she discovers is atypical of the genre, and some of the changes she makes certainly render this newfound world less than ideal.

equally intense. While she has been assured, for example, that the people already have one religion, the Empress takes a series of steps to control the ecclesiastical formations in the Blazing World. Converting the populace to Christianity and giving women a more prominent role in the church is insufficient; she seeks to ensure that her people will not be “inconstant” and endeavors to keep them in “constant belief, without inforcement or blood-shed” (193). She relies on two new technologies in a religious context to achieve this end: firestones and starstones. These she uses in the construction of two chapels. In the one lined with star-stones, she preaches “Sermons of comfort,” as she knows that love inspires the people to perform “their duties” as subjects (192–3). In the fire-stone chapel, which appears to be constantly in flame, the Empress preaches “Sermons of terror to the wicked” (192). While her deployment of technologies that provoke hope and terror alleviates her own anxiety and fear, it appears to be of little use to her subjects, who had (at the very least) a satisfactory religion before her arrival. Moreover, in revealing the comfortable alliance that the Empress perceives between new technologies and social control, Cavendish preempts her later concern that in war scientific development may be used to limit rather than liberate bodies.

The Empress’s concern about the danger of the debating hybrid species is not predicated on their behavior but rather on her own past experience and her exposure to the Duchess’s ruptured society. Shortly before she informs the Duchess that there are factions, the Empress seems rather bored with the Blazing World, as it needs no alterations “by reason it was so well ordered that it could not be mended … neither was there any ambition, factions, malicious detractions, civil dissensions, or home-bred quarrels, divisions in Religion, forreign Wars … but all the people lived in a peaceful society, united Tranquility, and Religious Conformity” (216).

The scientific debates of the hybrid men, as Sylvia Bowerbank and Sara Mendelson point out, clearly do not threaten this tranquility, as they are described as “a pleasurable exchange of ideas” in which “the bear-men and worm-men feel free to laugh when the Empress’s opinions seem naïve to them.”⁴⁰ Indeed, with certain groups, such as the fish-men, who are natural philosophers, there seems to be little disagreement at all (163). It is only after the two women visit the fractured world of the Duchess of Newcastle, where the Empress witnesses the discontent of various states, the desire to “encroach upon their neighbors,” and the celebration of “Plunder and Slaughter,” that the Empress tells the Duchess, “there are such continual contentions and divisions between the Worm- Bear- and Fly-men, the Ape-men, the Satyrs, the Spider-men and all others of such sorts, that I fear they’ll break out into an open Rebellion, and cause a great disorder and ruine of the Government” (217, 229). At this point she follows the Duchess’s advice to dissolve the disputing societies and to restore the original systems of knowledge production and power, leaving the Blazing World and its government “ordered and

⁴⁰ Bowerbank and Mendelson, “Introduction,” in *Paper Bodies: A Margaret Cavendish Reader*, p. 33.

settled ... to the best advantage" (231). The narrative inconsistencies, however, render the Empress's claims and the Duchess's advice suspect.

A conversation between the Empress and the Duchess on the subject of conquest intensifies the reader's skepticism. Shortly after the spirit of the Duchess comes to advise the Empress, the conversation turns to fame and power. The Duchess announces that she too wishes to become an Empress, inspiring the two women to feverishly imagine what other worlds they might conquer. Concerns about peace and tranquility appear to dissipate when the Empress proclaims that regardless of whether such worlds are populous, "it is not impossible to conquer" them (212). But the Spirits remind the women that "for the most part, Conquerors seldom enjoy their conquest, for they being more feared than loved, most commonly come to an untimely end" (212). The aggression the Duchess and Empress embrace here may derive from dread. If, as Purkiss intimates, fear and anxiety in the context of war can lead to violent rites to expel the other, and even to atrocity, then surely the fear that Cavendish experienced during the Civil War leads her to recognize the acts of aggression and suppression such fear produces.⁴¹ Cavendish makes increasingly apparent that the anxiety and alarm that derive from conflict is difficult to suppress, and both the Duchess, who is from a world "very much disturbed by factions, divisions, and wars," and the Empress have experienced violence (216). This history of violence appears to color their perception of myriad other seemingly distinct and self-contained areas of life, including scientific societies, which the Empress and Duchess view with suspicion. Misgivings about the "the new science's claim" to seek "knowledge with selfless disinterest" might derive from the tendency of the rhetoric of war to harness other discourses to its own ends, distorting them to disturb and disrupt the minds and bodies of civilians.⁴²

Cavendish confirms that martial trauma cannot be easily set aside when the Duchess tries to withdraw into her imagination to create a world. After struggling to work from the ideas of a series of natural philosophers, she ends with Hobbes before discarding external influences altogether. But Hobbes's theories, rooted in the notion of war as a natural state, particularly trouble her and are difficult to discard. She attempts to dissolve this world of aggression "which caused such a horrible pain in her head," but, as the narrator explains, its residue remains embedded in her flesh. Though the world of aggression disperses, she cannot "without much difficulty, settle her mind, and free it from that pain which those pressures and reactions had caused in it" (215). Cavendish suggests here that it is almost impossible to expel the anxiety and dread of a war-weary society and these

⁴¹ Michel de Montaigne had, almost a century earlier, theorized the relationship between fear and aggression or cruelty. In his essay "Cowardice, Mother of Cruelty," he wonders why tyrants are so bloodthirsty and concludes that they are motivated by fear: they act out of a "concern for their security." Montaigne, *The Complete Works*, trans. Donald M. Frame (New York: Alfred A. Knopf, 2003), p. 641.

⁴² Keller, "Producing Petty Gods," p. 455.

passions do not merely influence the minds of particular characters in *The Blazing World*, but increasingly seep into the text as a whole.

Ironically, the fear and anxiety that emerge from the aftermath of war leads to more conflict as it defensively penetrates the seemingly innocent discourse of science and relocates it in the decidedly masculine realm of warfare. In the background of the “Romancical” portion of *The Blazing World*, violence moves to the forefront of the Empress’s mind in the philosophical part. And in the concluding section of the narrative, violence materializes in military combat. Intriguingly, Cavendish has called the third part of her narrative “meerly Fancy, or (as I may call it) Fantastical” (153). While the Blazing World seems to have avoided internal rebellions and apparently returned to its creative recuperative state, Cavendish suggests that imaginative transcendence made possible by new scientific ideas is inevitably penetrated and marked by the monstrous nature of military violence. Although the war takes place on foreign soil, the Empress’s original world, it has a profound effect on the Blazing World, specifically in terms of the role of the hybrid beings.

The Empress is informed by visiting spirits that “the World she came from, was embroiled in a great War,” and that most of the aggression is directed at “that Kingdom which was her Native Country” (231). This news compels her to turn her attention immediately to manufacturing violence and harnessing hybridity to that end. The decaying cadaver, the dark shadow of hybridity excised at the inception of the narrative, reappears at the very moment that she devises military strategies. When the Empress asks her husband for a means to defend the world of her birth, he surmises that immaterial spirits, using “men’s Bodies” as vehicles, could go into battle on her behalf (231). The Empress retorts that it is difficult to access huge numbers of “dead and undissolved bodies” (presumably the decaying corpses of men who died *en masse* at war), speculating that before these bodies could “Rendezvouze, and be put into a posture of war” they would “stink and dissolve” (232). In a fight, she laments, they would “moulder into dust and ashes” (232). Moreover, the souls of the bodies would resist the immaterial spirits, provoking an internal “war” that would diminish their ability to conduct an external one (232). Though the Empress rejects her husband’s ideas, sadly it is for *practical* reasons rather than for *moral* ones; she simply concludes that it would be too difficult to carry out. As military conflict begins to shape the narrative, therefore, destructive forms of hybridity, forms that perpetuate war rather than offering an alternative to it, enter the text to threaten its earlier redemptive forms.

Cavendish’s reference to the reanimated corpse, and particularly the resurrected soldierly body, echoes and reworks a passage from *Pharsalia*. In Book 6 of this violent anti-epic, the “impious witch” Erictho selects the carcass of a soldier newly slaughtered in battle and revives it through a repulsive ritual to ask it to predict the outcome of the war.⁴³ As Erictho wanders “among slain men ...

⁴³ Lucan, *Pharsalia*, p. 160, line 604. For the entire episode, see pp. 159–67, lines 570–830.

[p]oking about amongst organs deathly cold," finally selecting "a body with throat slit," the narrator declares,

Had she tried
to raise entire armies on the field and set them fighting,
Death's laws would have yielded, a nation would have gone to war,
dragged by that monstrous power up from Stygian Averno.⁴⁴

Cavendish's borrowing of an abhorrent hybrid (proto-zombie) trope—half living, half dead—from this popular text suggests it is deployed to structure and disturb the more overtly positive representation of war that follows and to remind readers that glorious narratives of war are always steeped in the horrifying fracturing of the material body.

Cavendish's trope prepares the reader for the ultimate martial solution reached by the Empress, with the help of the Duchess of Newcastle, whose impulse towards this particular form of degeneration presumably derives from her world, "E" or England. This solution involves a grotesque innovation, a transformation in the nature of the hybrid creatures, the Empress's alternative to the animated corpses. They change from organic beings to mechanical ones. In fact, they become proto-cyborgs—half beast-man, half machine—agents of the state that are used as either war technology or other tools of authority. The "gunless" ship that opened the tale is replaced by ships that go underwater and carry the Empress and her military troops back into her world, a darker alternative to the original peaceful technology of the beast-men.

On the one hand, readers of *The Blazing World* are initially intoxicated by the scientific dream that leads to a "brilliant naval campaign" made possible by hybrid beings that can both fly and live beneath the sea.⁴⁵ However, on the other hand, during the battle, the creatures are reduced to automatons in the imperial service, becoming little more than Cartesian mechanical machinery. The Duchess herself, before the war, contributes to their ontological diminution. Concerned about the limited number of hybrid beings that the Empress can transport into the war zone, the Duchess suggests they will play a diminished role there. "What can such sorts of Men do in the other World," she asks, adding, "a Musket will destroy numbers of Birds at one shot" (233). The Duchess implies that the hybrid men will be perceived as nothing more than beasts, pests who can easily be eliminated, in the world to which the Empress returns. The answer to the Duchess's concern, it appears, is to transform the "monster races," with all their rich potential, into a technologically advanced equivalent of a musket.

On the advice of the Duchess, the Empress instructs the fish-men to participate in a naval battle using fire-stones, which alight when wet. They "carry the Fire-stones ... [and] when they ... [are] just under the Enemies ships, or close at

⁴⁴ Ibid., p. 161, lines 625–6, 629, 637–8, 633–6.

⁴⁵ Susan James, "Introduction," in Susan James (ed.), *Margaret Cavendish: Political Writings* (Cambridge: Cambridge University Press, 2003), p. xxi.

their sides ... [they] wet them, and set ... their Ships on fire' (238–9). To counter ongoing enemy resistance, she directs both the worm-men and the bird-men to attack their towns: "the Worm-men laid some Fire-stones under the Foundation of every House, and the Bird-men placed some at the tops of them, so that both by rain, and by some other moisture within the Earth, the stones could not fail of burning" (241). Meanwhile, the bear-men function as "the North Star," instruments of navigation and, through their telescope, of war reconnaissance (235).

The rational traits of the beast-men and their aptitude for social and intellectual exchange are no longer required when they become the ends of scientific advancement; reduced to futuristic war technology, they are machines that deliver and detonate explosive devices, enabling the Empress to fulfill her imperial desires without risking "ordinary" beings. Although the beast-men enter hostile territory and threaten its inhabitants, Cavendish elides the dangers they face and, indeed, the destruction they cause. The war she envisions is war without sacrifice on her own side, and any sacrifice on the other side is overlooked. We are told only that the ships of hostile nations are destroyed, and that vapor from the rocks "caused not onely a destruction of their Houses, but also a general barrenness over all their Countrey that year, and forced them to submit as well as the rest of the World had done" (241).

In *The Blazing World*, then, Cavendish initially embraces what appears to be a true utopia, a Paradise in which human and beast, composed of the same matter, exist in a perfect blended harmony. She creates this idealized fanciful world in order to escape an England permanently scarred by the violence of the Civil War. She demonstrates, however, that while fancy or the imagination seems to escape the trauma of war that marks the material world, it is difficult to protect new imaginative enterprises, scientific or otherwise, from its lingering effects. Thus, when the narrative moves back to England ("E"), to the historical reality of a nation that is not only recovering from the Civil War but is also embroiled in the ongoing Anglo-Dutch Wars, the unspoiled balance between beast and human can no longer be sustained. It is in reference to this fallen world that Descartes's concept of the beast as automaton or machine is restored and extended, making the beast a mere instrument of the destructive desires of humanity. Its suffering, then, as a living being, becomes irrelevant as, in Cartesian terms, "the animal's experience of pain ... [is] not a full experience of pain."⁴⁶

One might argue that it is only in the real world of political and military might that the beast-men must be degraded, for they act as military machines only outside the Blazing World. Yet, when the war is over and we return to the Empress's kingdom, the beast-men, though still creative, have become increasingly mechanized.

⁴⁶ Erica Fudge, *Brutal Reasoning: Animals, Rationality, and Humanity in Early Modern England* (Ithaca and London: Cornell University Press, 2006), p. 158. As Fudge notes, Descartes had written to William Cavendish in November, 1646 about his conception of the animal, noting not only the inability of animals to express anything other than passion, but also proclaiming that animals did not have immortal souls. See p. 156.

The fish- and bird-men do entertain their Empress through imaginative works of music, and the Fox-, Ape-, Lice-, and Spider-men (and others) participate in sports events; however, we do not witness them operating again in a philosophical or scientific capacity. We do not hear of the Empress conversing with them again. She tells the Duchess that "she loved to discourse sometimes with the most Learned persons of that World," but she does not (as she has done earlier) specifically identify these erudite persons as beast-men, and she follows this comment with an expression of desire "to please the Emperor and his Nobles, who were all of the Royal race," implying that it is aristocratic persons rather than hybrid beings who now form the core of her circle (249).

Where she does refer directly to the beast-men, their mechanical function is foregrounded inasmuch as the fish-men become machine floats to hold up the nobility as they dance (250). They become little more than stepping stones upon which to build the platform of power. The Duchess is, once again, the character appointed to take note of their changed condition. As the narrative draws to a close, she refers to the beast-men, salvific figures as they entered the text, in farcical terms when conversing about the possibility of staging one of her plays in the Blazing World. When the Empress discloses that "she love[s] a foolish farce added to a wise play," the Duchess responds that "no World in Nature had fitter Creatures for it then [sic] the Blazing-World; for, said she, the Lowse-men, the Bird-men, the Spider-and Fox-men, the Ape-men and Satyrs appear in a Farce extraordinary pleasant" (248).

In *The Blazing World*, Cavendish moves beyond raising critical questions about the value and validity of emergent scientific theories, methodologies, and instruments in order to examine the relationship between science—with all its potential for extending the capacity of humanity—and warfare. Writing in an environment in which old forms of knowledge and existence, as well as decades of effective national security against foreign enemies, had been destabilized by the Civil War, Cavendish suggests in *The Blazing World* that the proper place of science in the state and its role in knowledge production and nation building had yet to be determined. Cavendish's work of "science fiction" does offer a glimpse of a world in which scientific developments and innovative technologies signal potentiality, plenitude, and peace. But this optimistic aspect of her imaginative exercise is offset by her representation of the circular path fearful national leaders often take, one in which the productive potentiality of science and technology is initially sought, only to be exploited and diminished by a politico-military machine in war and its aftermath. In such a context, scientific progress, capable of imagining and perhaps even creating exquisite hybrid bodies, might well be reduced to a destructive pragmatism that creates only brutal and broken cadavers.

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Chapter 7

‘As Far as a Woman’s Reasoning May Go’: Aphra Behn, *Oroonoko*, and the New Science

Judy A. Hayden

Owing to the amorphous nature of genre in the seventeenth century, Aphra Behn’s *Oroonoko: Or, the Royal Slave* (1688),¹ to which she refers in the subtitle as “a true history,” has been identified as a novel, an anti-slavery text, a feminist polemic, a political demonstration of kingship, a commentary on the reign of James II, and a memoir, to name but a few. Certainly *Oroonoko* provides fruitful study for all of these arguments; however, within the context of a historical study of the development of natural history and the travel narrative, *Oroonoko* provides a complex and paradigmatic example of the interface between science, travel, and literary discourse and therefore offers some fascinating insight on the development of “scientific” discourse. Throughout *Oroonoko*, Behn presents her readers descriptions of the sort of astonishing phenomenon they might expect from a travel narrative of the New World, while simultaneously presenting a tragic story of a royal slave in Surinam. *Oroonoko* is indeed literary; it is certainly a memoir and in many respects a novel, but it is also a travel narrative, and within that narrative, Behn presents a natural history of Surinam. That *Oroonoko* has been little studied from this aspect may be well owing to the fact that “much of the description … is troweled in like mortar between the bricks of the story.”²

J. Paul Hunter has pointed out the amorphous nature of literary genres in the seventeenth and early eighteenth centuries.³ Naturalists and travelers designated their texts within a number of discourses, including “histories,” “reports,” “accounts,” “memoirs,” and so forth; but in spite of these different modes of writing, the texts themselves reveal significant similarity—not only to other forms of scientific discourse, but also to early modern fictional narratives.⁴

¹ Aphra Behn, *Oroonoko: or, The Royal Slave*, in Janet Todd (ed.), *The Works of Aphra Behn*, 7 vols (Columbus: Ohio State University Press, 1995), vol. 3, pp. 50–119, hereafter cited parenthetically.

² Frederick Link, *Aphra Behn* (Lincoln: University of Nebraska Press, 1968), p. 141.

³ J. Paul Hunter, “Robert Boyle and the Epistemology of the Novel,” *Eighteenth-Century Fiction* 2/4 (July 1990): p. 275.

⁴ Daniel Carey, “Compiling Nature’s History: Travellers and Travel Narratives in the Early Royal Society,” *Annals of Science* 54 (1997): p. 292.

Barbara Benedict has demonstrated that the Royal Society's effort to legitimize curiosity, even to "professionalize" it through scientific documentation, also found its way into popular literature. While there may have been a conscious awareness of—and even an emphasis on—"truth," scientific texts were not necessarily composed *entirely* of fact. According to Robert Mayer, truth "coexisted with a willingness to tolerate or even actively employ fictional elements" so that fictive material could be admitted if and "when rhetorical or practical considerations argued powerfully for its inclusion."⁵ At the same time, contemporary literature "co-opted and collapsed" the rhetoric of exploration, offering readers unbelievable wonders, yet encouraging them to believe these wonders "on the basis of physical evidence."⁶

This interface in modes of writing and endeavors of truth can be found, for example, in Lionel Wafer's note "To the Reader" in his *A New Voyage and Description of the Isthmus of America* (1699) with the following: "Tho' this Book bears partly the Name of Voyages, yet I shall here acquaint you before-hand, as I have hinted in the Book it self, That you are not to expect any Thing like a Compleat Journal, or Historical Account of all Occurrences in the Scene of my Travel."⁷ Though Wafer's work is entitled a "description" and a "voyage" (or at least "partly" a voyage), the author insists in the preface that his text is neither a travel narrative nor a history. As for truth, Wafer remarks that he "cannot pretend to so great an Exactness" as he would like, but he assures his readers, nevertheless, that he has been "especially careful" in those matters that "will seem strange." Joseph Pitts's account of his travel in the Middle East is entitled *A True and Faithful Account of the Religion and Manners of the Mohammetans* (1704), yet he observes in his subtitle that the text includes "many things never Publish'd by any Historian before." Pitts's text is a travel narrative, a history, and a treatise on Islam. In his "Preface," however, he refers to his text as "my poor *Memoirs*," and he assures his readers the he has "the most valuable Qualifications of an Historian on my side, i.e. *Truth*."⁸

Within the consciousness that Hunter identifies as owing to the development of the novel, ideas such as language, truth, observation, and experiment come into play, notions treated and expressed by men such as Bacon, Descartes, Boyle, Hooke, and Sprat, ideas which were essential to the New Philosophy, but which also came to impinge upon and inform the development of the eighteenth-century novel.

⁵ Robert Mayer, *History and the Early English Novel* (Cambridge: Cambridge University Press, 1997), pp. 11 and 35.

⁶ Barbara Benedict, *Curiosity: A Cultural History of Early Modern Inquiry* (Chicago: University of Chicago Press, 2000), p. 40

⁷ Lionel Wafer, "To the Reader," in *A New Voyage and Description of the Isthmus of America* (London: Printed for James Knapton, at the Crown in St. Paul's Churchyard, 1699), p. i.

⁸ Joseph Pitts, "The Preface," in *A True and Faithful Account of the Religion and Manners of the Mohammetans* (Exon: Printed by S. Farley, for Philip Bishop, and Edward Score, 1704), pp. iv–v.

The travel narrative, accepted as an inherent part of the burgeoning method of “inquiry” established by the newly formed Royal Society, was about the production of knowledge. “Indeed, the very business of collecting, organizing and analyzing natural phenomena … lay at the heart of seventeenth-century experimental science.”⁹

In the process of developing their methods of inquiry, the Royal Society rejected “all the amplifications, digressions, and swellings of style: to return back to the primitive purity, and shortness, when men deliver’d so many *things*, almost in an equal number of *words*.¹⁰ The Royal Society aimed for

“a close, naked, natural way of speaking; positive expressions; clear senses; a native easiness: bringing all things as near the Mathematical plainness, as they can: and preferring the language of Artizans, Countrymen, and Merchants, before that, of Wits, or Scholars.”¹¹

In this regard, Laurence Echard notes on the title page of *An Exact Description of Ireland: Chorographically Surveying all its Provinces and Counties* (1691) that his text follows “After a more Accurate, Plain, Easie and Particular Manner than any before done in this kind.”¹² In his “Preface” to *A New Voyage to Carolina* (1709), John Lawson writes that the style of his narrative is “preferable to a smooth Stile, accompany’d with Falsities and Hyperboles.”¹³

Given the intersection of literature and science in the seventeenth and early eighteenth centuries, it is not surprising that the preferred method of writing propounded by the Royal Society found its way into literary texts. In *Oroonoko*, for example, Behn explains the manner in which the naked, natural, and plain are of importance to the poet. In her dedication to Lord Maitland, she observes that just as the painter’s duty is to make the portrait “extreamly like,” so it is the duty of the poet (54). While on the one hand Behn disparages the high-handed flattery that typically adorns a dedication, she sets the tone here for the text that follows. She would be remiss, she suggests as she opens her story, to offer those sorts of “Adventures” that “Fancy may manage at the Poets Pleasure” (57). Offering a nod, perhaps, toward the style of contemporary travel narratives and the Society’s insistence on narratives devoid of amplification, she observes that her text “shall come simply into the World” (57). One important change that occurred during

⁹ Allan Chapman, *England's Leonardo: Robert Hooke and the Seventeenth-Century Scientific Revolution* (Bristol and Philadelphia: Institute of Physics Publishing, 2005), p. 50.

¹⁰ Thomas Sprat, *History of the Royal Society*, ed. Jackson I. Cope and Harold Whitmore Jones (St. Louis, Missouri: Washington University Studies, 1958), p. 113.

¹¹ *Ibid.*, p. 113.

¹² Laurence Echard, *An Exact Description of Ireland* (London: Printed for Tho. Salusbury at the sign of the Temple-Bar in Fleetstreet, 1691).

¹³ See John Lawson, “Preface” in *A New Voyage to Carolina* (1709), ed. Hugh Talmage Lefler (Chapel Hill: University of North Carolina Press, 1967), p. 6, hereafter cited parenthetically.

the development of the New Science was the insistence on truth in testimony about observations and experiences regarding natural history. An emphasis on observation and credible testimony meant that the scientific community “came to participate in the discourse of fact.”¹⁴ Thus, in his description of North Carolina, John Lawson offers a “pleasant story” in which the inhabitants claim that on occasion Sir Walter Raleigh’s ship appears, “under Sail, in a gallant Posture,” but, to overturn any doubts about such an unbelievable apparition, he assures his readers that the story has a basis in fact because “the truth of this has been affirm’d to me, by Men of the best Credit in the Country” (62).

In the preface to his *Description of the Western Isles* (1703), Martin Martin writes: “There is nothing related to the following Account but what he vouches to be true, either from his own particular observation, or else from the Constant and harmonious Testimony that was given him by the inhabitants.”¹⁵ Martin insists that he is a credible witness; given, however, that some of his information came not from his own first-hand experience, but from the inhabitants of the area, he assures his readers that owing to their native simplicity, the inhabitants are also credible. “[T]hey are a sort of People so plain, and so little inclined to impose upon Mankind, that perhaps no place in the World at this day, knows such instances of true primitive Honor and Simplicity; a People who abhor lying tricks and Artifices, as they do the most poisonous Plants, or devouring Animals.”¹⁶

Novelists appropriated this “discourse of fact,” assuring their readers of the authenticity of their recorded experience, either claiming to be a direct witness or by insisting on the reliability of the indigenous resident.¹⁷ Behn uses this same approach in *Oroonoko*, claiming the people of Surinam “represented to me an absolute *Idea* of the first State of Innocence, before Man knew how to sin” (59). Although she insists, “I was my self an Eye-Witness to a great part, of what you will find here set down; and what I cou’d not be Witness of, I receiv’d from the Mouth of the chief Actor in this History, the *Hero* himself” (57), she puts forward her hero Oroonoko as her credible witness. That the reader can rely on what Oroonoko offers might be affirmed by the fact that this man’s “Honour was such as he never had violated a Word in his Life himself, much less a solemn Asseveration” (84). Oroonoko’s integrity is further revealed when, after being repeatedly misled and given false promises by the plantation owners in Surinam, he observes:

there was no Faith in the White Men, or the Gods they Ador’d; who instructed ’em in Principles so false, that honest Men cou’d not live amongst ’em; though no People profess’d so much, none perform’d so little; that he knew what he

¹⁴ Barbara J. Shapiro, “Testimony in Seventeenth-Century English Natural Philosophy: Legal Origins and Early Development,” *Studies in History and Philosophy of Science* 33/2 (June 2002): pp. 249–50.

¹⁵ Charles W.J. Withers, “Reporting, Mapping, Trusting: Making Geographical Knowledge in the Late Seventeenth Century,” *Isis* 90/3 (September 1999): p. 511.

¹⁶ *Ibid.*, p. 511

¹⁷ Hunter, “Robert Boyle and the Epistemology of the Novel,” p. 280.

had to do when he dealt with Men of Honour; but with them a Man ought to be eternally on his Guard, and never to Eat and Drink with *Christians*, without his Weapon of Defence in his Hand. (109)

Oroonoko's integrity, then, particularly in the light of events within this narrative, is even above that of European gentlemen.

But how could an African slave serve as a credible witness? Behn counters the impossibility by unfolding in the first part of her narrative Oroonoko's true heritage—he is not a slave, but a royal prince. Furthermore, in his native Africa, Oroonoko was a warrior, widely respected and even revered by his men, who trusted him implicitly as a man of honor. Throughout the text, Behn insists repeatedly on the credibility of what Oroonoko believes and relates as opposed to the unreliability of the “white men” in the settlement. Of crucial significance to the facts of her story is his education; not only was he fluent in languages, such as English and French, for example, but more specifically he had been taught science (62).

Who could serve as a credible witness was fairly acknowledged in the masculine “scientific” community. Charles Withers notes that in mapping Scotland’s geography, Robert Sibbald sent queries to “nobility, the gentry, the clergy, the royal burghs, and officials within Scotland’s universities and colleges,” men he deemed credible and hence trustworthy.¹⁸ The gentleman was defined in the seventeenth century not only by his wealth, but by his work; the gentleman did not *have* to work, and if he did, he typically exerted control over others.¹⁹ Oroonoko may have been sold as a slave in Behn’s story, but at no time during his life in Surinam does he “work.” Trefrey, who had purchased Oroonoko, recognized his extraordinary mien and permitted him such liberty as to be continually exploring with Behn’s party. Oroonoko also serves informally as a leader of the slaves, but appalled at their condition, he incites them to regain their dignity and revolt against their masters.

At the same time, Behn goes to great lengths to demonstrate her own gentility, explaining that her father had been appointed “Lieutenant-General of Six and thirty Islands, besides the Continent of *Surinam*” (95). In her dedication to Lord Maitland, she notes in reference to her social rank that “*I had none above me in that country*” (56), and “As soon as I came into the Country, the best House in it was presented me, call’d *St John’s Hill*” (96), again a suggestion of her social status. She references her social rank not merely to insinuate herself into a society of genteel collectors of artifacts, I would argue, but rather to establish her own credibility as a witness.

While credibility may have been essential for the establishment of truth, so, too, was the dependence on “fact,” and evidence was a prerequisite for a text to be accepted as fact. “Travelers into new worlds had long earned suspicion,

¹⁸ Withers, “Reporting, Mapping, Trusting,” p. 507.

¹⁹ See Steven Shapin’s *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: University of Chicago Press, 1994), pp. 48, 52. See also Marjorie Swann, *Curiosities and Texts. The Culture of Collecting in Early Modern England* (Philadelphia: University of Pennsylvania Press, 2001), p. 78.

since homebound readers could not verify their tales, just as readers of esoteric experiments could not reproduce the laboratory's results.”²⁰ Robert Beverley acknowledges this problem in his “Preface” to *The History and Present State of Virginia* (1705), observing. “‘Tis agreed, that Travellers are of all Men, the most suspected of Insincerity. This does not only hold, in their private Conversations; but likewise in the *Grand Tours*, and Travels, with which they pester the Publick, and break the Bookseller.”²¹

Fact, then, was one of the most significant tenets of the Royal Society, whose members were to “make faithful *Records* of all the Works of *Nature*, or *Art*, which can come within their reach.”²² In his “Preface” to *A New Voyage to Carolina*, John Lawson assures his readers that “I have, in the following Sheets, given you a faithful Account thereof, wherein I have laid down every thing with Impartiality, and Truth, which is indeed, the Duty of every Author” (6). That *Oroonoko* might seem unnatural or fictitious, Behn acknowledges in her dedication to Lord Maitland, but, much as Lionel Wafer does later, she offers a defense of her story’s authenticity, explaining that “[i]f there be any thing that seems Romantick, I beseech your Lordship to consider, these Countries do, in all things, so far differ from ours, that they produce unconceivable Wonders; at least, they appear so to us, because New and Strange” (56).

Benedict argues that “scientific documents sought to define legitimate curiosity by forging a professional method.”²³ To determine the veracity of claims made about distant lands as well as to obtain new knowledge, the Royal Society developed and sent out a number of inquiries to travelers and merchants.²⁴ Given the popularity of such inquiries, the availability of travel narratives, and Behn’s acquaintance with gentlemen who were members of the Royal Society, such as Thomas Sprat, Thomas Colepeper (possibly a relative), John Dryden (a contemporary playwright and poet), and John Wilmot, the Earl of Rochester, for example, she may have been privileged to particular insight on contemporary “scientific” ideas and discussions. It would not be surprising if she had access through these contacts to some of the texts of the *Philosophical Transactions*, and I particularly suggest Robert Boyle’s “General Heads for a Natural History of a Country, Great or Small,” published in *Philosophical Transactions* in 1666, for she appears to address these in the context of her story.

Boyle’s instructions for travelers, or “heads,” contained four areas of which travelers should take particular note, which he likens to heaven, air, water,

²⁰ Benedict, *Curiosity*, p. 18.

²¹ Robert Beverley, “Preface” in *The History and Present State of Virginia* (1705), ed. Louis B. Wright (Chapel Hill: University of North Carolina Press, 1947), p. 8.

²² Sprat, *History of the Royal Society*, p. 61.

²³ Benedict, *Curiosity*, p. 40

²⁴ For more on these inquiries, see the essays in Part 1 of this text by Daniel Carey and Jason Pearl.

and earth,²⁵ and in *Oroonoko*, Behn contributes some thoughts to each of these heads. Under "heaven," Boyle lists those items travelers should particularly observe, such as the longitude and latitude of the country, the length of the days and nights, and the constellations. In the course of describing Surinam, Behn records that the vastness of the continent is as yet unknown, but "they say, it reaches from East to West; one Way as far as *China*, and another to *Peru*" (95). Of the air, Boyle suggests travelers inquire into the temperature, the weather, the seasons, the winds, and even the diseases of the country. Behn observes of Surinam that it is "Eternal Spring, always the very months of *April, May, and June*," so that the trees are in perpetual abundance of "Oranges, Limons, Citrons, Figs, Nutmegs" and so forth (95).

Of the water, Boyle instructs travelers to note such items as the depth of the sea, the tides, the length and course of rivers, the qualities of the lakes, ponds and springs, and the type of fish within these. Behn's observations on the water, like that of the other heads, fall within the context of events in her narrative, so that her description of the "River of Amazons," which she notes is "almost as broad as the River of *Thames*" (104), becomes part of her report on the discovery of gold dust in the mountains of Surinam. Not only is the river broad, but she records that a journey upriver to an Indian village takes eight days (100). Of other sources of water, Behn notes that a small party of Indians, who showed her bags of gold dust, informed her that there were a number of channels in the mountains (103).

Where Behn offers the most detail is in her discussion of "the Earth," Boyle's fourth "head," which largely includes questions about minerals, animals, plants, agricultural practices, and the indigenous peoples. Her descriptions of animals and plants often include resemblances to other, more familiar specimens or analogies to common English ones. For example, Behn observes of the "armadilly" that "I can liken [it] to nothing so well as a *Rhinoceros*; 'tis all in white Armor so joynted, that it moves as well in it, as if it had nothing on; this Beast is about the bigness of a Pig of Six Weeks old" (77). The marmoset, she records, is "a sort of *Monkey* as big as a Rat or Weesel, but of a marvelous and delicate shape, and has Face and Hands like an Humane Creature" (58). Identification by comparison was a method suggested by Bacon in his *Novum Organum* (1620), that it was beneficial to observe "resemblances and analogies of things ... which unite nature, and begin to constitute sciences."²⁶ Even so, he adds, one should be "very cautious, and accept as resembling and *analogous* only those instances which denote physical similarities ... real and substantial similarities which are founded in nature" (146).

The Baconian emphasis on resemblances and analogies was a common method used in a number of travel narratives. For example, in his description of New

²⁵ Robert Boyle, "General Heads for a Natural History of a Countrey, Great or small, Imparted Likewise by Mr. Boyle," in Michael Hunter and Edward B. Davis (ed.), *The Works of Robert Boyle*, 14 vols (London: Pickering and Chatto, 1999), vol. 5, pp. 508–11.

²⁶ Francis Bacon, *The New Organon*, ed. Lisa Jardine and Michael Silverthorne (Cambridge: Cambridge University Press, 2000), p. 146. All references to Bacon's text hereafter cited parenthetically.

England published in 1674, John Josselyn observes that “[t]he Partridge is larger than ours, white flesht, but very dry[;] they are indeed a sort of Partridges called Grooses.”²⁷ Of the “beasts” in Carolina, John Lawson writes that “The *Panther* is of the Cat’s kind; about the height of a very large Greyhound of a reddish Colour, the same as a Lion. He climbs trees with the greatest Agility imaginable” (123). Of the possum, Lawson notes, “[I]s found no where but in *America*. He is the Wonder of all Land-Animals, being the size of a Badger, and near that Colour” (125).

In the course of her travel narrative, Behn becomes the explorer, trekking into the wilds of the uncharted back country, recording primary observations and experiments—without claiming forthrightly that she is doing so. In each of the events she describes, she raises the spectrum of curiosity as every discovery becomes more wondrous than the last. “Curiosity could open terrae incognitae where the explorers became conquerors,” and this is especially true of the New World, where “curiosity itself could be applauded as heroism.”²⁸ Mary Terrall claims that the “scientist” came to be viewed as a hero, trekking to distant and exotic locations and performing experiments.²⁹

At times Behn’s direct approach to inquiry becomes heroic, or at least certainly daring. For example, through an incident she describes in her story of a visit to the native encampment located eight days up the river, she describes in detail the appearance, dress, and customs of the people and records their amazement at seeing Europeans in their camp (100–103). While Oroonoko and the others hide in nearby reeds, Behn, her brother, and her woman walk into the camp alone to gauge the reaction of the native people. Of the experimental encounter, Behn records that the natives took “their Hair up in their Hands … spreading it wide to those they call’d out too; as if they would say (as indeed it signify’d) *Numberless Wonders*” (101). Not only did Behn observe first-hand the inhabitants and the culture of this native village, but, she writes, “we suffer’d ’em to survey us as they pleas’d, and we thought they wou’d never have done admiring us” (101).

She describes her visit in some detail, noting a few of the words she learned of the native language, such as “Amora, Taguamy—which is as much as, *How do you do* or *Welcome friend*” (101). The villagers served their visitors venison and buffalo, gathering a leaf from the sarumbo tree, “of Six Yards long, and spread it on the Ground for a Table-Cloth, and cutting another in pieces instead of Plates, setting us on little bow *Indian* Stools, which they cut out of one intire piece of Wood and Paint in a sort of Japan Work” (101). Behn also details the social structure of the village, from their prophet, “the Great *Peeie*,” who is chosen for the post from infancy, to the war captains, who were so frightening from their

²⁷ John Josselyn, *A Critical Edition of Two Voyages to New-England* (1674), ed. Paul J. Lindholdt (Hanover, NH: University Press of New England, 1988), p. 71.

²⁸ Benedict, *Curiosity*, p. 19.

²⁹ Mary Terrall, “Gendered Spaces, Gendered Audiences: Inside and Outside the Paris Academy of Sciences,” *Configurations* 3/2 (1995): p. 217.

contests of self-mutilation to demonstrate their courage that Behn likened their appearance to “Hobgoblins, or Fiends” (102–3).

As Parrish points out, “words like ‘always’ and ‘notwithstanding’ demonstrate experiential knowledge,”³⁰ and Behn uses such rhetoric in *Oroonoko*. For example, the weather in Surinam was “always Sweet and Charming” (96); and Oroonoko, who was “receiv’d more like a Governor than a Slave. Notwithstanding, as the Custom was, they assign’d him his Portion of Land, his House, and his Business up in the Plantation” (89), respected Colonel Martin and “always took his counsel” (112). In her discussion of the natives, she notes that they are adept at assisting the English in obtaining food, “[s]o that they being, on all Occasions, very useful to us, we find it absolutely necessary to caress ’em as Friends” (60). She explains that “[s]ometimes we wou’d go surprizing, and in search of young *Tigers* in their Dens” and that “[a]nother time, being in the Woods, he [Oroonoko] kill’d a *Tiger*, which had long infested that part” (96–7).

While Behn designs her narrative around her hero, the royal slave, she also offers a significant view of the flora and fauna, the geography, the indigenous peoples and so forth. In adopting this narrative strategy, Behn portrays herself as a collector of specimens. Artifacts that were particularly rare, such as feather headpieces, were extremely valuable in the seventeenth century.³¹ She explains that the indigenous tribes of Surinam made “glorious Wreaths for their Heads” and that she was presented with a set, which she later gave “to the King’s Theatre, and it was the Dress of the *Indian Queen*” (58).³² Behn also claims to have presented a collection of “rare Flies [butterflies], of amazing Forms and Colours” to His Majesties *Antiquaries* (58).

One of the difficulties that Behn encounters in producing her narrative, however, is that a seventeenth-century woman could hardly be accepted as a hero and certainly not a “scientific” adventurer and explorer; hence, Behn confers this status overtly on Oroonoko, who, she notes early in her text, was educated in science. Therefore, when he heard claims about a “Strange Fish” called the numb eel (the electric eel), which renders fishermen numb once the eel touches the bait, Oroonoko doubted the “Philosophy, that a cold Quality should be of that Nature” (99). To test the veracity of such claims, he catches one; not only does Oroonoko become numb, but he nearly drowns in the process of the experiment. Behn scrupulously addresses the authenticity of this strange fish, assuring her

³⁰ Susan Scott Parrish, “Women’s Nature: Curiosity, Pastoral, and the New Science in British America,” *Early American Literature* 37/2 (June 2002): p. 212.

³¹ Swann, *Curiosities and Texts*, p. 25.

³² Behn refers here to the play by John Dryden and Sir Robert Howard, first performed in January 1664 by the King’s Company at the Theatre Royal. The play was extremely successful and revived on a number of occasions. Maureen Duffy notes an observation by Cosmo Manuche in a manuscript in Worcester College that “the speckled plumes [in *The Indian Queen*]” helped to bring a tremendous audience to the play. See Maureen Duffy, *The Passionate Shepherdess: The Life of Aphra Behn 1640–1689* (London: Phoenix, 2000), p. 66.

readers that it does indeed exist since she not only saw it, but “we had the *Eel* at Supper, which was a quarter of an Ell about, and most delicate Meat” (99).

Her voyage upriver to the native encampment and Oroonoko’s experiment with the numb-eel do not contribute significantly to the development of the plot of her story. Although Behn claims that she includes them because they contain “some Proofs of the Curiosity and Daring of this great Man, [and thus] I was content to omit nothing of his Character” (104), the daring was on many occasions hers, as for example, the incident upriver in the Indian encampment where Behn, her brother, and her woman went alone into the village. While many of the events in her texts are recorded purportedly to offer insight into the character of Oroonoko, they serve just as well to demonstrate her own engagement with observation and “experimentation,” and they allow her the opportunity to record the sort of information requested of (male) travelers and merchants, as credible witnesses, by the Royal Society.

Given the emphasis on witness and credibility in a “scientific” endeavor, Behn as sometime explorer and eye witness needed to be credible and hence “honorable.” When she begins her description of the trek upriver, she mentions specifically that she was in the company of eighteen people, including Oroonoko and her brother. While she was an eye witness to the event, she also assures her reader that she was in fact modest and “honorable,” being accompanied by other women and under the protection (or perhaps supervision) of men, including her brother. The facts she presents, then, should be unquestioned for not only can she provide additional witnesses, but one of those who accompanied them was the royal prince Oroonoko, who had “all the Civility of a well-bred great Man” (62).

Michael McKeon suggests that any claim to historicity was perceived to be only as strong as the character of the writers.³³ What is important is the writer’s “modesty.” Thus, in *The History of the Royal Society*, a travel narrative entitled *A Relation of the Pico Teneriff* is subtitled, “Receiv’d from some considerable Merchants and Men worthy of Credit, who went to the top of it.”³⁴ That the value of one’s testimony was directly allied to one’s personal reputation or honor would have proved problematic for Behn since her modesty was already in question; as a female writer, she was viewed as a “public” woman and therefore someone of dubious virtue.

Furthermore, even if Behn were genteel, and no proof seems extant to suggest clearly her social status, her gender was nevertheless problematic. The Royal Society, inspired by Bacon’s “rationale for a new social order” in the scientific community and of which he saw himself as the administrator, did not include women.³⁵ Bacon advocated not only a natural philosophy rooted in examination of natural phenomena (which required the collection of specimens), but also the creation of a hierarchy of workers. For the collection and examination of artifacts

³³ Michael McKeon, *The Origins of the English Novel 1600–1740* (Baltimore: Johns Hopkins University Press, 1987), p. 108.

³⁴ Sprat, “A Relation of the Pico Teneriff,” in *History of the Royal Society*, p. 200.

³⁵ Swann, *Curiosities and Texts*, p. 63.

necessary to accomplish Bacon's scientific enterprise, he required men to collect them (largely merchants in their travels), to accumulate and/or compile them, and to function as his "subordinate assistants."

Women, then, had no place in Bacon's vision of the scientific community—nor did they accumulate any under the Royal Society. This is not to discount women who did indeed engage in some way in the scientific community, such as Behn herself; however, such engagement frequently came in the context of working with a father, brother, husband, and so forth, and certainly with some peril, as each women who did so stood some risk of damaging her reputation.³⁶ Women like Aphra Behn, who were not from the social elite nor had a male family member or tutor to mentor them, could easily find their honor tarnished. For example, Charles Dibdin (c.1745–1814) recorded that Behn inflamed the passions of many men and that her relationship with Oroonoko was a sexual one.³⁷ While Dibdin's assertion may seem shocking, his comments merely reflect a long-held assertion that women's curiosity was linked with sexual proclivity. Given that Behn was engaged as a professional writer and already viewed as a "public" woman, her curiosity only served to reinforce her immodesty.

The New Science was prescribed as masculine, a sentiment reified by Henry Oldenburg, secretary to the Royal Society, who observed that the business of the Royal Society was "to raise a masculine philosophy."³⁸ Descartes too, Susan Bordo claims, configures a "masculine rebirthing of the world," which she suggests is a "defiant gesture of independence from the female cosmos."³⁹ Science, like Nature, had long been rendered female; thus, with its masculine rebirth, the discourse of the New Science adopted various metaphoric paradigms, frequently assuming a gender war of some nature where reticent and cagey female Nature needed to be vanquished by the aggressive male "scientist," for example, or Nature was depicted as an insubordinate and/or unruly female, who required dominant masculine authority to put her in her rightful place.⁴⁰ And, in fact, Bacon claims in *Novum Organum* that Nature "is conquered only by obedience" (33). Dangerous and willful nature needed to be subdued, Bacon asserts, but in the process, she becomes a victim of further and repeated assault as the "scientist" penetrates her "more inward and remote parts" (36).

³⁶ A number of these women who engaged in science in some manner are explored in the essays in *The New Science and Women's Literary Discourse: Prefiguring Frankenstein*, ed. Judy A. Hayden (New York: Palgrave, 2011).

³⁷ Charles Dibdin, *A Complete History of the English Stage*, 5 vols. (London: The Author, 1797–1780), vol. 4, pp. 198–200.

³⁸ Susan Bordo, *The Flight to Objectivity: Essays on Cartesianism and Culture* (Albany: State University of New York Press, 1987), p. 104.

³⁹ *Ibid.*, p. 106.

⁴⁰ Fascinatingly, an engraving for the frontispiece of an English translation of experiments of the Italian *Accademie del cimento* was published in 1684, which presents nature as female being led by Aristotle to the Royal Society, who is depicted as a woman—as is the *Accademie del cimento*. See Figure 7.3.



Fig. 7.1 *Philosophy*, unidentified Italian artist (c.1465). Photograph © Museum of Fine Arts, Boston, M25974.



Fig. 7.2 *Science*, attributed to Jan Saenredam (1565–1607). Photograph © Museum of Fine Arts, Boston, P7392.

Bacon exhorts philosophers not to be hesitant in their incursions, complaining that theologians “in their ignorance completely block access to any philosophy,” and that “some are simply anxious that a closer investigation of nature may penetrate beyond the permitted boundaries of sound opinion” (74–5). Implicitly, then, Bacon urges the sort of investigation, penetration, and prying that churchmen have long since thwarted. “The secrets of nature,” he continues, “reveal themselves better through harassments” just as the thoughts of a man are “better brought out when he is in a troubled state” (81). In his epistle dedicatory, Nathaniel Highmore wrote to Boyle, “You stick not to trace Nature in her most intricate parts, [and] to torture her to a confession.”⁴¹ John Ray’s epitaph notes that he had “pierced ev’n her darkest entrails through.”⁴² Boyle, however, suggests in *New Experiments* that observations in Nature “may be looked upon as genuine Declarations, which Nature makes of her own accord, and not as confessions extorted from Her by Artificial and compulsory Experiments, when being tortured by Instruments and Engines, as upon so many Racks, she is forced to seem to confess whatever the Tormentors please.”⁴³

The configuration of Science and of Nature as female would have presented difficulties for women attempting to engage in this new discourse. While in his *Advancement of Learning* Bacon acknowledges the learning of Queen Elizabeth I as being “rare euen amongst masculine Princes,”⁴⁴ yet he also observes that she died a “virgin queen.” The emphasis Bacon places on her unmarried state, underlines the “remarkable” if not “abnormal” quality of her circumstances. Not asserted, but yet implicit, is the notion that although her singular learning provided the wisdom necessary to rule her kingdom, it was a knowledge that was not generative.

Aside from Queen Elizabeth’s “rare” education, women’s exclusion had long been practiced in a number of disciplines, based largely on the reputed “emotional shortcomings” of their gender. For example, women were excluded from various genres of painting, except for portraiture and still-life, “on the grounds that their male figures might be effeminate or anatomically incorrect,” and Richard Steele in *The Tatler* complained that a history written by women would be all about “love.”⁴⁵ Women were discouraged from engaging in science owing to concerns about their credibility as witnesses, their emotional instability, and the assumption that their “preoccupation with the domestic and emotional” would prevent them

⁴¹ Nathaniel Highmore, “Epistle Dedicatory” in *History of Generation* (London, 1651), as quoted in Susan Scott Parrish, “Women’s Nature,” pp. 199–200.

⁴² Daniel J. Boorstin, *The Discoverers* (New York: Random House, 1983), p. 8, as quoted in Parrish, “Women’s Nature,” p. 199.

⁴³ Robert Boyle, *New Experiments and Observations Touching Cold* (1665), in *Works of Robert Boyle*, vol. 4, p. 464.

⁴⁴ Bacon, *Advancement of Learning*, ed. with intro, notes, and commentary Michael Kiernan, vol. 4, *The Oxford Francis Bacon* (Oxford: Clarendon Press, 2000), p. 43.

⁴⁵ D.R. Woolf, “A Feminine Past. Gender, Genre, and Historical Knowledge in England, 1500–1800,” *The American Historical Review* 102/3 (June 1997): p. 656.

*This figure has intentionally been removed for copyright reasons.
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Fig. 7.3 Engraving by Richard Waller (?). Frontispiece to the English translation of *Saggi di naturali esperienze [Essays of natural experiments made in the Accademie del cimento (1684)]*. Reproduced by permission of the Folger Shakespeare Library, No. 158–142q.

from distinguishing between the trivial and the extraordinary—not to mention their lack of an appropriate (and masculine) education that would qualify them for such an endeavor.⁴⁶

In spite of the masculine convention against women engaging in the New Science, it is important to acknowledge that some women did indeed enlist in the scientific community in some manner, although these were often members of the upper social classes. For example, Lady Alethea Talbot (1585–1654), Countess of Arundel, was an accomplished herbalist, whose recipes were published as *Natura Exenterata: or nature Unbowelled* (1655); Margaret Hoby (c.1571–1633), was also a herbalist and skilled in preparing medicines;⁴⁷ Gabrielle Emilie le Tonnelier de Breteuil, Marquise Du Châtelet, (1706–1749) actively engaged in the study of physics, while Anne Conway (c.1630–1679) and Margaret Cavendish, Duchess of Newcastle (c.1623–1673) demonstrated an interest in philosophy. Margaret Flamsteed (c.1670–1730) assisted her husband's work in astronomy, learning sufficient mathematics to do so, as did Caroline Herschel (1750–1848), who discovered comets as she spent a great deal of her life working with her famous astronomer brother, William.⁴⁸

Bathsua Makin, sister (or perhaps sister-in-law) to mathematician John Pell, who was known to be well-versed in mathematics and chemistry herself, argued for women's education in science, pointing out that women were already involved in science in their everyday lives:

To buy wooll and Flax, to die [sic] Scarlet and Purple, requires skill in Natural Philosophy. To consider a Field, the quantity and quality, requires knowledge in Geometry. To plant a vineyard, requires understanding in Husbandry: She could not govern so great a Family well, without Knowledge of Politicks and Oeconomics: She could not look well to the wayes of her Household, except she understood Physick and Chirurgery: she could not open her Mouth with Wisdom, and have in her Tongue the Law of Kindness unless she understood Grammar, Rhetorick, and Logick.⁴⁹

Like these women, Behn, too, seeks to engage in the rhetoric of the New Science and in the process attempts in *Oroonoko* to overturn the masculine paradigm, claiming Nature is “the most harmless, inoffensive and virtuous Mistress. ’Tis she alone, if she

⁴⁶ Ibid., p. 656.

⁴⁷ See Lynette Hunter, “Women and Domestic Medicine: Lady Experimenters, 1570–1620,” in *Women, Science and Medicine 1500–1700. Mothers and Sisters of the Royal Society* (Stroud, Gloucestershire: Sutton Publishing, 1997), pp. 89–107. I want to thank Rosemary O’Day of Open University for this reference.

⁴⁸ On women in astronomy, see Rob Iliffe and Frances Willmoth, “Astronomy and the Domestic Sphere: Margaret Flamsteed and Caroline Herschel as Assistant-Astronomers,” in *Women, Science and Medicine 1500–1700. Mothers and Sisters of the Royal Society* (Stroud, Gloucestershire: Sutton Publishing, 1997), pp. 235–65.

⁴⁹ Bathsua Makin, *An Essay to Revive the Antient Education of Gentlewomen* (1673), introduction Paula Barbor, William Andrews Clark Memorial Library Publication No. 202, (Los Angeles: University of California Press, 1980), p. 35.

were permitted, that better instructs the World, than all the Inventions of Man" (59). Nevertheless "the scientific culture of this period was constructed as masculine."⁵⁰

That Behn takes up science in *Oroonoko* and constructs her story in prose rather than as a play, for which she was so well known, is curious. Even her contemporary playwright Thomas Southerne commented on her unusual choice. Aphra Behn, Southerne notes, had "a great Command of the Stage; and I have often wonder'd that she wuld bury her favourite Hero in a *Novel*, when she might have reviv'd him in the Scene."⁵¹ Southerne turned her text into a play, *Oroonoko: A Tragedy* (1696), which was immensely successful and enjoyed repeated performances well into the eighteenth and nineteenth centuries.⁵² So why did Behn, who was nearly always in a critical state of penury and certainly ill at the time she wrote *Oroonoko*, choose to tell her story in prose?

That a downturn in audience attendance and other economic hardships forced the two patent theatres to join as the United Company in 1682, limiting the opportunity to present new dramatic works, certainly may have played a role here. However, we cannot overlook the seventeenth-century audience's desire for curiosities and wonder. As J. Paul Hunter argues, the wonders in journalistic accounts and/or fictional narratives were "the verbal equivalent of what was sought in public exhibitions, museums, and travel The taste for 'wonder' in life reproduced itself in texts; the worlds of print and exhibition reinforced one another."⁵³ In writing *Oroonoko*, then, Behn was perhaps addressing an audience eager for the sort of amazing spectacles which she had experienced, those curiosities such as wild tigers, electric eels, and indigenous peoples, all of which could excite and even astonish the reader.

Nevertheless, there is surely more to *Oroonoko* than simply audience appeal, and certainly this text was not Behn's first attempt to engage with scientific ideas.⁵⁴ In 1688, Behn published a translation of Bernard le Bovier de Fontenelle's *Entretiens sur La Pluralité des Mondes* (1686), which she entitled *A Discovery*

⁵⁰ Swann, *Curiosities and Texts*, p. 79.

⁵¹ Thomas Southerne, "To His Grace, William Duke of Devonshire," in *Oroonoko: A Tragedy*, in Robert Jordan and Harold Love (eds), *The Works of Thomas Southerne*, 2 vols (Oxford: Clarendon, 1988), vol. 2, p. 103.

⁵² Van Lennep notes that the date of the premier of Southerne's *Oroonoko* is not known; however, it was advertised in the *Post Boy*, 12–14 December 1695, and in the *London Gazette* No. 3140 December 12–16, 1695, so that the play was in performance at least by November 1695. See William Van Lennep, ed., *The London Stage 1660–1800*, Vol. 1: 1660–1700 (Carbondale: Southern Illinois University Press, 1963), p. 454.

⁵³ J. Paul Hunter, *Before Novels. The Cultural Contexts of Eighteenth-Century English Fiction* (New York: Norton, 1990), pp. 209–10.

⁵⁴ Alvin Snider has demonstrated, for example, Behn's use of Cartesian philosophy in her poems "On a Juniper-Tree, Cut down to Make Busks" and "To the Unknown Daphnis on his Excellent Translation of Lucretius." See Snider's "Cartesian Bodies," in *Modern Philosophy* 98/2 (November 2000): pp. 299–319, and his "Atoms and Seeds: Aphra Behn's Lucretius," *CLIO* 33/1 (Fall 2003): pp. 1–24.

of *New Worlds*.⁵⁵ Her translation was so popular that it quickly went through numerous editions. Fontenelle designs his scientific discourse on the Copernican system as a dialogue between an “expert” on the subject and a Marchioness, who he enlightens during their evening walks in a garden. Behn, clearly frustrated by the way Fontenelle presents his Marchioness, remarks in the preface to her translation that “sometimes he makes her say a great many silly things” (77). Furthermore, the “height of Extravagancy” in his text, she observes, could only “confound those Readers who have not Judgment and Wit to distinguish between what is truly solid … and what is trifling and airy” (77). She ends her preface with the wish that she had the time to write her own text on astronomy.

Fontenelle’s construction of science, particularly geometry, as requiring rational masculine properties as opposed to passionate female ones, had to have angered Behn, particularly given her life-long demand for female education. Mary Terrall observes that “[t]he authority of science and mathematics rested on … masculine associations, especially their difficulty and ‘solidity,’ and the rigorous rationality necessary to understand them.”⁵⁶ Fontenelle’s text emphasizes the masculine properties typically associated with reason, including order, precision, and exactitude, an association removed from the female sphere, which was typically allied with passion and pleasure; science, then, “had to be made in a masculine setting.”⁵⁷

Yet in the extended argument she offers in the “Preface” to *A Discovery of New Worlds*, Behn demonstrates her knowledge of the Copernican system, offering a discussion in astronomy and geometry to prove that the learned Father André Tacquet was incorrect in his disputation of the Copernican and Ptolemaic systems based on scripture. In fact, Vanpaemel, argues, “Tacquet rejected the Copernican system for religious reasons but he still expounded the different astronomical hypotheses with equal care.”⁵⁸ Behn points out Tacquet’s ambiguity and sets out to demonstrate that while his text could support either theoretical system, Copernican or Ptolemaic, she believes the Copernican system is correct and uses scripture to argue its logic.

The exact date of the licensing and publication of *Oroonoko* is unknown, but Behn’s novel *The Fair Jilt, or, The History of Prince Tarquin and Miranda*, licensed 17 April 1688, carries the advertisement that “There is now in the Press Oroonoko; or the History of the Royal Slave Written by Madam Behn.”⁵⁹ Her translation of

⁵⁵ Aphra Behn, *A Discovery of New Worlds*, in Janet Todd (ed.), *The Works of Aphra Behn*, 7 vols (Columbus: Ohio State University Press, 1993), vol. 4, pp. 69–165, hereafter cited parenthetically.

⁵⁶ Terrall, “Gendered Spaces,” p. 216.

⁵⁷ Ibid., p. 217.

⁵⁸ G.H.W. Vanpaemel, “Jesuit Science in the Spanish Netherlands,” in Mordechai Feingold (ed.), *Jesuit Science and the Republic of Letters* (Cambridge, MA: Massachusetts Institute of Technology Press, 2003), p. 408.

⁵⁹ Aphra Behn, *The Fair Jilt: or, The History of Prince Tarquin and Miranda*, in Janet Todd (ed.), *The Works of Aphra Behn*, 7 vols (Columbus: Ohio State University Press, 1995) vol. 3, pp. 1–48. See Todd’s “Headnotes” to *The Fair Jilt*, vol. 3, p. 2.

Fontenelle, however, was probably issued about the same time.⁶⁰ That a number of her texts in a very short period of time engage in some way with the New Science is not a consequence, I would argue, but rather more likely a concerted effort to demonstrate—just as she did when she became a professional playwright—that the New Science was not a masculine purview. In fact, she argues in the “Preface” to her translation that “*the Authors introducing a Woman as one of the speakers in these five Discourses*” was one of the motives that induced her to undertake the task.

Behn had probably already read Fontenelle’s *Entretiens* by the time she wrote her farce, *Emperor of the Moon* (1687),⁶¹ an elaborately staged and spectacular theatrical piece, largely an adaptation of the French *Arlequin Empereur dans la lune*. It would not be surprising if her reading of Fontenelle served as a catalyst for her farce since the play satirizes a fantastical virtuoso, who through his telescope hopes to peep into the closet of “the great Monarch of the upper World” (I, ii, 3–4). Doctor Bialiardo keeps his daughter and his niece secluded while he engages in his work. Elaria, Bialiardo’s daughter, complains that her father is infected with reading books, including

Lucian's Dialogue of the Lofty Traveller, who flew up to the Moon, and thence to Heaven; an Heroick business called, *The Man in the Moon*, if you'll believe a Spaniard, who was carried thether, upon an Engine drawn by a wild Geese; with another Philosophical Piece, *A Discourse of the World in the Moon*; with a thousand other ridiculous Volumes too hard to name. (I, i, 92–7)

⁶⁰ Maureen Duffy suggests that the licensing date for *Oroonoko* “could belong to any part of 1688,” although she places it in the middle of the year; see *Passionate Shepherdess*, p. 272. Mary Ann O’Donnell observes that in the second edition of Behn’s poem “A Congratulatory Poem to His Majesty on the happy Birth of the Prince of Wales” is a note by the publisher that “on Wednesday next will be Published the most Ingenious and long Expected History of Oroonoko; or, the Royal Slave.” See *Aphra Behn: An Annotated Bibliography of Primary and Secondary Sources*, A30.2a. The earliest that *Oroonoko* could have been published then is mid-June. O’Donnell notes that Fontenelle’s *Entretiens sur la Pluralité des Mondes* had been translated in Dublin by W.D. Knight as *A Discourse of the Plurality of Worlds* in 1687. Given that Behn changed the title of her translation from *A Plurality of Worlds* to *A Discovery of New Worlds* to distinguish perhaps between the two translations, it seems probable that her translation was rushed to the press as early in 1688 as possible. (See O’Donnell, *Aphra Behn: An Annotated Bibliography of Primary and Secondary Sources*, BA7.1.) While both texts may well have been in some state of construction during the early months of 1688, I would argue that her translation of Fontenelle came before *Oroonoko* and that the first actually led to the publication of the latter.

⁶¹ Aphra Behn, *Emperor of the Moon*, in Janet Todd (ed.), *The Works of Aphra Behn*, 7 vols (Columbus: Ohio State University Press, 1993), vol. 7, pp. 153–207, hereafter cited parenthetically. Van Lennep notes that there is no premier date for this text, but given that it was licensed for publication in April, 1687, the first production was probably in March, 1687. See Van Lennep, *London Stage*, p. 356.

Meanwhile, the lovers of the two young women hatch an elaborate scheme by which one becomes Iredonozar, the Emperor of the Moon, and the other his first minister, the Prince of Thunderland, by which they plan to win the ladies.

During the elaborately contrived arrival of the Emperor of the Moon, Elaria remarks of the music and the staging that this must be some sort of enchantment. Baliardo replies, “Let not thy Female Ignorance prophane the highest Mysteries of Natural Philosophy: To Fools it seems Inchantment” (III, i, 448–50). But, of course, the doctor, agog with meeting the Emperor of the Moon, is easily cozened and the enterprising men win the ladies. When Doctor Baliardo realizes that he is the victim of an elaborate conceit, he invites the young men to join him and to tell him “by what kind degrees you Cozen’d me—I see there’s nothing in Philosophy” (III, i, 667–9).

By the time that Behn prepared her translation of Fontenelle’s text, having expended the greater part of her irritation on her farce, she was clearly ready to present a serious treatise on the “faults” of his scientific observations and, hence, prepared to demonstrate that women and men are equally capable of scientific inquiry. Thus, her observation in the dedication of her *A Discovery of New Worlds*, that she is “a new beginner in” the New Science, is surely as disingenuous as her self-effacing remark that William, Earl of Drumlangrig, should “pardon the text” if he finds her translation incorrect because a women is “not supposed to be well-versed in the Terms of Philosophy” (72).

That Behn would turn then to write *Oroonoko* in prose and as a travel narrative and natural history is perhaps a comment on her notion about women and the New Science. In *A Discovery of New Worlds*, she overtly contests negative perceptions of women’s curiosity and understanding, confronting the dynamic of a particularly “masculine” sphere of science. Her argument in support of the Copernican system is well-reasoned, yet she prefaces it with “as far as a woman’s reasoning may go,” as if expecting to be challenged (78), daring and yet waiting for the other shoe to drop. By the time she writes *Oroonoko*, however, she seems content to let her text come confidently and “simply into the world,” devoid of bravado, fanfare or contest.

Chapter 8

Roger Phequewell, Colonial Man of Science: Re-Reading Imperial Fantasy in *Merryland*

Marcia Nichols

Countless colonial advertisements and travelogues extolled New World beauties by employing an ancient trope—the comparison of land and woman as interchangeable objects to conquer and cultivate. By describing the New World in this familiar and expected way, travel writers hoped to make the exotic unknown accessible and desirable to their home audience. However, the very interchangeability of woman and land created opportunities for bawdy punning and satire that some apparently found irresistible. One of the most popular of these satires, *A New Description of Merryland* (1740), an erotic pamphlet written by Thomas Stretzer and published by Edmund Curll, parodies the use of the land-as-woman metaphor in scientific travelogues, exposing the prurient underbelly of scientific inquiries into nature's secrets. This pamphlet mocks geography and current scientific debates on reproduction while imitating the language and style of an American correspondent of the Royal Society; additionally, it surreptitiously educates its readers on methods of contraception.¹

A New Description of Merryland, which enjoyed brief popularity before falling into obscurity, celebrates the sexualized female body and shared delectation. Following the conventions of geographical description, the pamphlet begins with a tongue-in-cheek dedication to a well-known man of science written by an “editor,” the first of two personae. The “editor” also writes an introduction to the reader in which he provides the biographical information needed to establish the credibility of the obscure “author,” the eponymous Roger Phequewell. This is followed by the text proper, a natural history and geographical description of “Merryland,” a fantastic country abounding in a variety of “curious” plants, animals, and landmasses, whose “Inhabitants,” both male and female, are ruled by a gynarchy of absolute Queens.

The following year, Stretzer assumed yet a third persona to write a (self) mocking critique of *A New Description*, entitled *Merryland Displayed* (1741), in which he reveals many of the sources from which the “author” of the original—

¹ [Thomas Stretzer], *A New Description of Merryland Containing A Topographical, Geographical, And Natural History of That Country*, 4th edn (Bath, [1741]), rpt in Patrick Spedding (ed.), *The Geography and Natural History of Mid-Eighteenth Erotia*, in Alexander Pettit and Patrick Spedding (gen. ed.), *Eighteenth-Century British Erotica*, 5 vols (London: Pickering & Chatto, 2002), vol. 3, pp. 119–91, cited parenthetically hereafter.

neither Phequewell nor the “editor” here, but Curnell’s hack—had plagiarized. In it Stretzer accuses the author (in actuality, himself) of writing *A New Description of Merryland* to “sneer at the Geographers” and other learned men. He explains that

The first Conception was owing to our Author’s accidentally reading in *Gordon’s Geographical Grammar* these Words, which Mr *Gordon* uses in speaking of *Holland*, viz. “the Country lying very low, it’s Soil is naturally very wet and fenny.” Ha! said he, the same may be said of a **** as well as of Holland²

Such a comparison is not uncommon in Augustan erotica. His geographical reading inspired Curnell’s hack to create the persona of Phequewell and the land of Merryland with which he could mock not only geography and natural history, but also scientific inquiries into generation and embryology, man-midwifery, Dr. George Cheyne, and the Royal Society itself. However, much of the recent scholarship on *A New Description* has tended to dismiss Stretzer as a satirist, viewing the pamphlet instead as a failed scientific parody and an all-too-typical destructive, imperialist reification of women.³

Nevertheless, early modern pornography was often connected with the New Science and materialist philosophies and was more frequently a vehicle for criticism rather than (pure) titillation.⁴ In Britain, satirists used bawdry to critique various scientific and medical discoveries and theories, that avatar of their collective might, the Royal Society, and its members.⁵ Rather than reading *A New Description* as merely lowbrow humor or another instance of imperial rape fantasy and dismissing Stretzer’s self-accusation, this erotic pamphlet must be reconsidered in the terms Stretzer himself sets out, in other words, as a parody of contemporary science that highlights the sexualized and sexist language of science and medicine. Before examining *A New Description* in detail, I want to turn first to earlier travelogues describing the colony of “Maryland” to see what light they may shed upon Stretzer’s satire. Next I will analyze the relationship between the

² *Merryland Displayed Or, Plagiarism, Ignorance, and Impudence, Detected*, The Second Edition (Bath, 1741). *The Eighteenth Century*, reel 9398, p. 8, cited parenthetically hereafter. For female genitalia as Holland, see Karen Harvey, *Reading Sex in the Eighteenth Century* (Cambridge: Cambridge University Press, 2004), pp. 64–5.

³ Paul-Gabriel Boucé, “Chthonic and Pelagic Metaphorization in Eighteenth-Century English Erotica,” in Robert Purks Maccubbin (ed.), *’Tis Nature’s Fault: Unauthorized Sexuality during the Enlightenment* (Cambridge: Cambridge University Press, 1987), pp. 204–7; Patrick Spedding, “Introduction,” in *Geography and Natural History*, pp. xii–xiii; Darby Lewes, *Nudes from Nowhere* (Lanham: Roman & Littlefield, 2000), pp. 2–10.

⁴ Lynn Hunt, “Introduction: Obscenity and the Origins of Modernity, 1500–1800,” in Lynn Hunt (ed.), *The Invention of Pornography* (New York: Zone Books, 1996), pp. 10–11, 30.

⁵ Julia Peakman, *Mighty Lewd Books* (Hounds Mills: Palgrave Macmillan, 2003), pp. 67–92; Harvey, *Reading Sex*, pp. 82–9. Some other scientific parodies include *The Natural History of the Arbor Vitae* (1732); *The Natural History of the Frutex Vulvaria, or Flowering Shrub* (1732); and *Teague-Root Displayed: Being Some Useful and Important Discoveries Tending to Illustrate the Doctrine of Electricity* (1746).

different personae, scientific credibility, and the description of Merryland's natural resources as an attack on theories of generation. Finally, I will argue that the inclusion of females amongst the "Inhabitants" offers a liberatory and educative space for actual female readers.

Stretzer's treatise fits into a tradition of colonial prospectus literature. It is a "new" description of Merryland, implying that there have been other descriptions, despite his complaint "*that all modern Geographers ... should be entirely silent about so remarkable a Country, which was discovered many Ages ago*" (139–40). Stretzer could refer here to an older somatopia, *Erotropolis: The Present State of Bettyland* (1684), which also describes woman-as-land in pseudo-geographical terms and which Edmund Curll republished around the same time as *A New Description* to cash in on its popularity.⁶ Yet, it is equally possible that our two pornographers, and at least some readers, connected Merryland with Maryland.

Owing to the slippery orthography of the period, a casual reader of an advertisement for the pamphlet might in fact assume it was a new description of one of Britain's North American colonies and its "author" Phequewell a repatriated adventurer. Even the casual reader of the first chapter might believe it a description of an actual colony, not only because Stretzer lifted much of it from Patrick Gordon's *Geography Anatomized* (1693), but also because previous natural historical descriptions of Maryland had used highly erotic language in the tradition of blazon, the poetical praising of a mistress's parts to other men.⁷ For example, John Hammond, on a trip back to England, published the highly political *Leah and Rachel, or the two fruitful Sisters of Virginia and Mary-land* (1656), a treatise that introduces these North American colonies as nubile young women, ripe for impregnation (if not pregnant already). Hammond figures Virginia and Maryland as wives and himself a faithful husband(man) dedicated to extolling, cultivating, and protecting their pastoral beauties from the politico-religious strife of their "Inhabitants" (a term Stretzer also frequently uses to describe those living in Merryland).⁸

Hammond was not the only British observer to describe Maryland in terms befitting "Merryland." A decade after Hammond's pamphlet, George Alsop published *A Character of the Province of Mary-Land* (1666), described by Louis Lemay as "one of the most witty and scurrilous books of colonial America."⁹ Like Hammond, Alsop imagined Maryland as a fertile woman, abounding in natural resources to be exploited by European colonists. Despite Annette

⁶ For closer examinations of *Erotropolis*, see Peakman, *Mighty Lewd Books*, pp. 97–100; Lewes, *Nudes from Nowhere*, pp. 117–19; and Harvey, *Reading Sex*, pp. 103–5.

⁷ Patricia Parker, *Literary Fat Ladies: Rhetoric, Gender, Property* (London and New York: Methuen, 1987), pp. 140–57.

⁸ John Hammond, *Leah and Rachel, or, the Two Fruitfull Sisters Virginia, and Mary-land* (London: Printed by T. Mabb, 1656), The Library of American Civilization, reel 40127, p. 21, cited parenthetically hereafter.

⁹ J.A. Leo Lemay, *Men of Letters in Colonial Maryland* (Knoxville: University of Tennessee Press, 1972), p. 48.

Kolodny's claims that Alsop focuses on "the mothering, nurturing elements in the landscape," this is an erotic mother, whose very fecundity advertises her charms for the prospective colonist.¹⁰ Maryland is

within her own imbraces extraordinary pleasant and fertile. Pleasant, in respect of the multitude of Navigable Rivers and Creeks that conveniently and most profitably lodge within the arms of her green, spreading, and delightful Woods; whose natural womb (by her plenty) maintains and preserves the several diversities of Animals that rangily inhabit her Woods, as she doth otherwise generously fructifie this piece of Earth with almost all sorts of Vegetables, as well Flowers with their varieties of colors and smells, as Herbes and Roots with their several effects and operative virtues, that offer their benefits daily to supply the want of the Inhabitant¹¹

The imagery does describe a nurturing maternal landscape; however, this Maryland is a MILF that, with open arms, beckons the colonist to enjoy her "Pleasant" waterways. Furthermore, Alsop presents Maryland as an edenic haven, distanced from corrupt London; in much the same way, Stretzer presents the pleasures of Merryland as an escapist fantasy to the syphilitic cesspools of the bordellos exposed in Ned Ward's *The London Spy*.¹² Clearly travelers's accounts of Maryland began a tradition that seemed to encourage confusion between the colony named after Queen Mary and a fantasy destination of erotic delights.

By the end of the seventeenth century, the punning possibilities inherent in "Maryland" had been teased loose from their geographical moorings. "Marry-Land" became the imperial destination of young men seeking brides in Mary Evelyn's *Mundus Muliebris; or, The Ladies Dressing-Room Unlock'd, and her Toilette Spread* (1690).¹³ The speaker of the poem advises a young man on the accoutrement he must provide for his chosen bride to fit her out for their journey to "Marry-Land":

He that will needs to Marry-Land
 Adventure, first must understand
 For's Bark, what Tackle to prepare,
 'Gainst Wind and Weather, wear and tare:
 Of Point d'Espagne, a Rich Cornet,
 Two Night-Rails, and a Scarf beset
 With a great Lace, a Colleret. (1-7)

¹⁰ Annette Kolodny, *Lay of the Land* (Chapel Hill: University of North Carolina Press, 1975), p. 14.

¹¹ George Alsop, *A Character Of the Province of Mary-Land* (London: Printed by T.J. for Peter Dring [1666]), p. 2.

¹² Lemay, *Men of Letters*, pp. 48-57.

¹³ For the only recent critical examination of Evelyn's poem, see David S. Shields, *Civil Tongues and Polite Letters* (Chapel Hill, NC: University of North Carolina Press, 1997), pp. 53-4.

The poem continues in the same vein, listing all of the clothing, toiletries, household goods, and behavior a well-bred young woman expects from her beau. The phonetic Maryland has been wrenched completely from a geographical reality (albeit one in which promised agrarian pleasures were to reach erotic heights) to become a fantasy destination that promised literal sexual ecstasy. Although the pelagic imagery distinguishes the poem from the topographical natural histories, the destination of presumably conjugal bliss indicates that pleasing female whim is the only key to licit sexual play. Stretzer applies the same theme in a wider context. In *Merryland*, both licit and illicit pleasure hinges upon masculine subordination to female whim.

Although in *Merryland Displayed* he does not list any natural histories of American colonies as sources, Stretzer parodies colonial writers like Hammond and Alsop and their use of eroticized descriptions of New World landscapes. In *Leah and Rachel*, Hammond rhapsodizes, “the soyle [of Maryland] is somewhat more temporate . . . many stately and navigable rivers are contained in it, plentifully stored with wholesome springs, a rich and pleasant soile . . .” (22). In comparison, Stretzer’s narrator Phequewell reports in *A New Description* that Merryland, “the loveliest and sweetest Region of the World,” has fruitful “wet and fenny” soil, although, unlike in Maryland, there *are* dry, barren regions as well. Merryland’s soil is as desirable to eager husbandmen as Maryland’s, especially “The Parts which have never been broke up, nor had a Spade or Plough in them,” affirming the period’s obsession with virginity.¹⁴ Similarly, Merryland, “is well water’d by a River” that, through its navigability, allows for all commerce in the land (154–5). And, just as Hammond “grew amoured on [Maryland’s] beauty,” Merryland is “so exceeding delighting, that every Man at first coming into it is transported with Pleasure” (153).¹⁵

While placing a premium on virginity and fertility, Stretzer nonetheless creates a realm inclusive of post-menopausal and barren women (dry regions)—an inclusivity rare in masculine imaginings about erotic womanhood.¹⁶ Typically masculine fantasy has hinged upon virgin or maternal beauties or, miraculously, the iconic virgin mother. More typical of the male pen are attempts to laugh away through derision or pathology masculine fears of a devouring, non-procreative female sexuality. For example, Henry Fielding attempted to tame male fear by holding its source up for ridicule in the character of Lady Booby, a voracious middle-aged woman in pursuit of the innocent and pure Joseph Andrews, much as Benjamin Franklin used the horror of coupling with an elderly woman as goad

¹⁴ Corrine Harol, *Enlightened Virginity in Eighteenth-Century Literature* (New York: Palgrave Macmillan, 2006), pp. 1–10.

¹⁵ See also Hammond, *Leah and Rachel*, p. 21.

¹⁶ Londa Schiebinger, *Nature’s Body: Gender in the Making of Modern Science* (Boston: Beacon, 1993), pp. 62–70.

to encourage marriage.¹⁷ More insidiously, Scottish physician William Buchan simply declared female barrenness an incurable “disease” that prevents women from “enjoy[ing] good health.”¹⁸ Stretzer’s *New Description* is not devoid of this fear; much like Franklin, he avers that some travelers are “so whimsical” as to prefer “one of these barren Spots” (156). However, the joke ends there, without ridiculing either the “barren spots” as old, unattractive, or undesirable hags, nor does he ridicule their male partners. On the contrary, Stretzer justifies the choice of a barren wife or mistress as a means of birth control, which on the surface seems to be simply callous misogyny, but which actually leaves space for female agency over their fertility, a point to which I will return.

The personae used in the pamphlet for creating the illusion of scientific credibility were just as important as the language which mimicked geography. Yet commentators have tended to disregard the purported narrator of the piece, the traveler Roger Phequewell, and identify the narrative “I” with Stretzer himself. For example, Paul-Gabriel Boucé notes that Stretzer, under the “ominously (and doubly so) phallic name, Roger Pheuquewell,” parodied contemporary geographical writings in the structure of his book and that “[i]n the Preface, the author keeps up the pretense of being a true explorer, refusing all fabulous relations. Out to tell the truth, and nothing but the truth, he virtuously deplores the neglect of a wonderful land by such modern geographers as Moll, Gordon, and Salmon”; however, Boucé equates Stretzer with Phequewell and assumes that Stretzer drops the persona after the Prefaces.¹⁹ This reduction of the first-person narrator to the author is an error that obscures the multivalent nature of the text.

Stretzer not only borrowed heavily from other writers in *A New Description*, he also created two distinct personae, the “editor” and the colonial man of science, Roger Phequewell. Throughout the front matter of the pamphlet, Stretzer painstakingly established Phequewell’s authority as a colonial natural historian. The “editor” dedicates the book to Dr. George Cheyne, “an *eminent Physician*, ... a Member of that learned Society, of which you are also one of the Greatest Ornaments, ... [and] a *Philosopher*.” A popular Bath physician, Cheyne specialized in nervous disorders like hysteria and hypochondria; he also wrote *An Essay on Regimen* (1740), a health manual that controversially promoted a vegetarian diet, which Stretzer lampooned in the dedication.²⁰ But it is Cheyne’s membership in

¹⁷ Henry Fielding. *Joseph Andrews*, ed. Paul A. Scanlon (Ontario: Broadview Literary Texts, 2001). For Benjamin Franklin’s ideas see *Advice to a Young Man on the Choice of a Mistress* (1745) at <http://www.swarthmore.edu/SocSci/bdorsey1/41docs/51-fra.html>.

¹⁸ William Buchan, *Domestic Medicine: or, A Treatise on The Prevention and Cure of Diseases by Regimen and Simple Medicines ... the Eleventh Edition, Corrected and Improved* (Hartford: Printed for Nathaniel Patten [1789]), *Early American Imprints, Series I: Evans 1639–1800*. Series 1, no. 21715 (filmed), p. 600.

¹⁹ Boucé, “Chthonic and Pelagic Metaphorization,” p. 205.

²⁰ *An Essay on Regimen* (London: Printed for C. Rivington, and J. Leake, Bath, 1740). See Stretzer’s *New Description*, p. 124; *Merryland Displayed*, p. 17.

the Royal Society that is the crucial detail. Aspiring American scientists would correspond with British Society members to gain entry for their discoveries to that sodality.²¹ By dedicating *A New Description* to a Royal Society member, Stretzer facetiously suggests that its discoveries deserve the attention of the Royal Society, a joke made poignant by the interest the Society did display in matters concerning generation and female sexuality.²² Moreover, the joke is carried throughout the pamphlet, with Phequewell suggesting various scientific mysteries for the “Consideration of that curious and learned Body, the *Royal Society*,” such as the ever-changing latitude and longitude of Merryland (149).

For the joke to work, the “editor” must establish Phequewell’s credibility as a potential Royal Society informant. To this end, the “editor” confides to the reader that the Irish author traveled frequently in Merryland and had bankrupted himself with his “continually going and coming” thence (130). Phequewell’s eyewitness testimony is integral to his scientific credibility; however, his status as an Irish traveler could derogate his authority. The best informers were, of course, the Protestant English, but even so, the traveler’s account was always suspect as a potentially fantastic tale written for financial gain.²³ To bolster Phequewell’s credentials, the “editor” invents a “Capuchin Fryar” who recognizes the value of *A New Description* as a “curiosity.” In fact, all of continental Europe has recognized its intrinsic value, while the English have hitherto neglected “such grave and serious Books” because of their “Fondness for Fairy-Tales, fabulous Stories, monstrous Fictions and Romances” (131–5). The editor implies that it is a national shame that foreigners, rather than the English themselves, have valued the “*Truth and Novelty of the Subject*” since the English are inherently the most qualified to be curious, disinterested empiricists and scientists.²⁴ Thus, the alleged editor makes a nationalist claim while doubly distancing himself and his English readers from culpability for the bawdy content of the tract, shoving it first onto the shoulders of a Catholic, continental priest (the first publisher) and then onto those of an Anglo-Irish, yet potentially Catholic, author.

An author’s preface follows. In it Phequewell establishes himself as a Merryland expert. Although no Act of Union between England and Ireland had yet occurred, as it had with Scotland, which had opened a space for London-dwelling Scots like Drs. William Smellie and William Hunter to style themselves “North Britons,” Stretzer presents his persona as a British colonist, writing to a home audience eager for American curiosities yet skeptical of “fabulous Relations of idle Travellers.” No occasional traveler, Phequewell has been blessed “with

²¹ Susan Scott Parrish, *American Curiosity: Cultures of Natural History in the Colonial British Atlantic World* (Chapel Hill: University of North Carolina Press, 2006), pp. 101–30.

²² See, for example, Schiebinger, *Nature’s Body*, pp. 75–114, for an account of the scientific interest in the sexuality of apes in the eighteenth century.

²³ Parrish, *American Curiosity*, pp. 66–73.

²⁴ Nationalism was a common motif in erotica. See Harvey, *Reading Sex*, pp. 139–45.

twenty Years Experience, and frequent Opportunity of acquainting myself with the Situation and Circumstances of Merryland.” He will avoid presenting half-truths or fantastic guesses about “Laws, Customs, and Curiosities, of which we have hitherto a very imperfect Knowledge”; rather, he will support his own eyewitness testimony with older written accounts and the reports of other “intelligent Travellers” (137–9). Stretzer’s persona authorizes himself in a manner typical of most natural historians from the British imperial periphery writing to a London audience. For example, in the beginning of *Leah and Rachel*, Hammond tells us he had lived in America over 21 years and criticizes writers who describe places they have never been. In fact, Phequewell’s authorizing preface is so typical that most of the first three pages were “copied verbatim from Mr Salmon’s Introduction to his *Modern History: or, Present State of all Nations.*”²⁵

The narrator’s language indicates that the persona of the colonial scientist is not dropped after the preface, most notably through his use of the word “curious.” Curiosity defined the epistemological stance of the New Science. Objects and phenomena became “curiosities” that demanded the careful investigation of men bent upon defining and cataloging them. America provided a wealth of curiosities for colonials to investigate, report upon, and, when possible, ship back to their European correspondents for further study. Leading natural historians such as Linnaeus (whose taxonomic system, incidentally, was based upon sexuality and sexual difference) looked to American correspondents on the imperial fringes, like John and William Bartram, for example, to inform them of new botanical and zoological specimens.²⁶

Phequewell presents his treatise in the capacity of colonial scientific informant. Civic duty demanded the explorer share with the public and the Royal Society the curiosity that drove him to study Merryland diligently. In Chapter II of *New Description*, Phequewell announces,

Know then, courteous Reader, soon after my first Entrance into this wonderful and delightful Country (having as prying a Curiosity as most Men) I endeavoured to get the best Insight that was possible into every Thing relating to the State of Merryland, observing with diligent Attention every thing remarkable in Art or Nature. (148)

Phequewell, as a good British citizen, explores the New World and uses his natural curiosity to disinterestedly expand British knowledge and understanding, devoting Chapter VII, for example, to “the Rarities, Curiosities, &c.” of Merryland. These rarities include the “great River” that runs sporadically (and occasionally red); the Canal, which is not only unfathomable but also has violent tempests when touched by “a handsome sprig of the Coral-plant”; the “wonderful Mountain on

²⁵ *Merryland Displayed*, p. 22. As a Scottish author on the British imperial periphery, Thomas Salmon would have been under a similar need as an Irish or an American colonial author to authorize himself to a London-based audience.

²⁶ Schiebinger, *Nature’s Body*, pp. 14–46.

the Confines of Merryland" that mysteriously appears and disappears; two other distant mountains that occasionally "yields a very wholesome Liquor" and that seem to swell and dissipate in conjunction with the larger mountain; and finally, the most important curiosity, a "serpentine" animal, the "PNTL" (172–3). One of several disembodied penises in the book, the PNTL warrants closer examination than the carrots, cods, red corals, and so forth because it is the vehicle through which Stretzer attacked Cheyne and, through him, contemporary scientific theories about generation.

The PNTL is a boneless, blind, snub-nosed marine predator. A good zoologist, Phequewell provides detailed descriptions of this animal's size, appearance, and habitat, interlarded with lengthy quotations from Cheyne, whom he identifies as a fellow expert on the rare beast. Curiously, all PNTL are male, "yet they propagate their Species very plentifully" (174). To convince the unbelieving, Phequewell cites Cheyne's *Essay on Regimen* in which the doctor argues that there is no real sexual difference in the spiritual body, suggesting that this should be extended to the physical body as well.²⁷ In *Displayed*, Stretzer confesses that these quotations are "mean and invidious" and meant "to hurt the Doctor's established Reputation" (43). Beyond the libel, the inclusion of a parthenogenic animal thrusts Stretzer into the scientific fray over theories of generation.

In *On Generation* (1651), William Harvey declared all life came from eggs and suggests that conception is epigenetic—that elements from male and female join to form an entirely new life. While this matches our current theories, many felt at the time that this was an atheistic theory because it did not give God a proper role in generation. Most Enlightenment men of science favored preformationist theories. Preformationist theorists hypothesized that a fully formed fetus is contained in either the spermatozoa (the animalculist position) or the ovum (the ovist position). Conception is the moment when this tiny homunculus starts growing. In either theory, however, conception and fetal growth hinges on the life spark contained in male semen; in both, the female merely acts as an incubator.²⁸ At first blush, Stretzer seems to conform to these contemporary scientific theories by eliminating females in reproduction; however, by taking this position *ad absurdum*, he underscores that the male beasts draw their very existence from a primal vaginal world, reasserting feminine prerogative in creation.

Changing theories of generation also called into question the traditional belief that both partners needed to orgasm for conception to occur. Until the Enlightenment, the general population and most doctors largely adhered to the Galenist theory, which held that men and women both provided seed (women's seed naturally thinner and less perfect—"concocted"—than men's) during orgasm

²⁷ George Cheyne, *An Essay on Health and Long Life* (1813). *Early American Imprints*, Second Series, card number 28122, pp. 10–21.

²⁸ Peakman, *Mighty Lewd Books*, pp. 79–84; Shirley A. Roe. *Matter, Life and Generation* (Cambridge: Cambridge University Press, 2003), pp. 1–20.

that mingled together to form new life.²⁹ Over the eighteenth century, increasing numbers of scientists and medical men declared that not only was the female orgasm unnecessary, but that “good” women were not by nature lascivious.³⁰ Erotic writing, on the other hand, resisted the medical desexualization of women.³¹

A New Description is no exception. Throughout the text, female pleasure and orgasm are described in positive terms. The text celebrates female sexuality and lovingly catalogs every exterior and interior part of the female anatomy. Such elaborate anatomical descriptions are more in line with those found in midwifery manuals rather than erotic pamphlets that focus primarily on the vagina itself to the exclusion of all other organs, such as the botanical satire *Frutex Vulvaria* (1732), for instance. In fact, in *A New Description*, one of the “principal Places” is the “CLTRS,” the “*Pleasure Seat*” of the Queens of Merryland. The inclusion of the clitoris complicates dismissal of the text as merely a sexist debasement of women. Queens alone enjoy the clitoris; it can, at best, provide men with the vicarious pleasure of seeing a woman sexually aroused. Similar descriptions of the clitoris are found in midwifery manuals, both high- and low-brow, from the ubiquitous *Aristotle’s Masterpiece* to Smellie’s best-selling textbook for men-midwives, *A Treatise on the Theory and Practice of Midwifery* (1751). In midwifery manuals, the clitoris functions as a female penis, and in older works like the Aristotle texts, it needs to be aroused to guarantee conception.³²

The number of lines dedicated to the moistness of Merryland is another facet in the debate over the role of female orgasm in conception. As the nervous body replaced the humoral body as the epistemological framework for Enlightenment medicine, the importance of female moistness for health, specifically its role in fertility and barrenness, waned.³³ For example, Harvey dismissed vaginal moisture as important in conception; further, Smellie thought that if female ejaculation served any purpose, it was to form a cervical mucus plug.³⁴ Erotic writers picked up on such theoretical changes. In the *Frutex Vulvaria*, for example, the author

²⁹ Thomas Laqueur, *Making Sex: Body and Gender from the Greeks to Freud* (Cambridge, MA: Harvard University Press, 1990), pp. 8–11.

³⁰ Angus McLaren, *Reproductive Rituals: The Perception of Fertility in England from the Sixteenth Century to the Nineteenth Century* (London: Methuen, 1984), pp. 13–30.

³¹ Harvey, *Reading Sex*, p. 173.

³² *Aristotle’s Masterpiece* (1694), in Randolph Trumbach (ed.), *Marriage, Sex, and the Family in England 1660–1800* series (New York: Garland, 1986), vol. 11, pp. 23–100; *Aristotle’s Compleat Masterpiece*, 23rd edn (1749), in Randolph Trumbach (ed.), *Marriage, Sex, and the Family in England 1660–1800* series (New York: Garland, 1986), vol. 11, pp. 17–29.

³³ Robert Martensen, “The Transformation of Eve,” in Roy Porter and Mikulas Teich (eds), *Sexual Knowledge, Sexual Science: The History of Attitudes to Sexuality* (Cambridge: Cambridge University Press, 1994), pp. 107–33.

³⁴ William Harvey, *On Generation* (1651), in *The Works of William Harvey, M.D.*, trans. Robert Willis (Philadelphia: University of Pennsylvania Press, 1989), pp. 298–9; William Smellie, *A Treatise on the Theory and Practice of Midwifery* (1752), *The Classics*

questions “whether the *Vulvaria* is not a *succulent Plant*,” claiming that while the ancients said yes, most “modern *Botanists*” agree that it receives all of its juices from the *Arbor Vitae*—a sly way of denying women a role in conception.³⁵

Conversely, in Merryland moisture retains its importance. The air is moist, the river frequently floods, and the ground where fertile is moist—but not through the efforts of the farmer. Phequewell advises future homesteaders (after seeking permission of the particular Queen who owns the farm) to determine the moistness of the soil before ever beginning to plow. *A New Description* declares in no uncertain terms that feminine moisture is essential for both pleasure and fruitfulness. Stretzer challenges theories of reproduction that had largely turned women into incubators instead of active participants. Rather, women were actively involved in reproduction, producing and mingling their own “geniture” with their male partners to create offspring. At the very least, women in Merryland must be sexually pleased to function properly as incubators.

Furthermore, Stretzer provides subversive birth control education through the guise of the conventionally moral Phequewell. The narrator of *A New Description* declares that too “large [a] Crop”—unwanted pregnancy—has “put some People on inventing Means to prevent the Seed taking Root, or to destroy it before it comes to Maturity; but such Practices are only used by Stealth, and not openly approved of; it is looked on as a bad Practice, and we are told it was formerly punished by Death” (157). Julie Peakman reads this as a conventional condemnation of birth control and abortion.³⁶ However, the narrator does not actually condemn birth control; rather he notes that it has been deemed socially unacceptable. By using a passive, third person voice (“it is looked on”) to condemn birth control and abortion, instead of the “I” employed throughout, Stretzer casts doubt upon the immorality of contraception. Further, the very act of describing birth control methods, even if it is to condemn them, provides readers with these techniques, a charge leveled at many popular sex guides such as the *Onania* (1716), which condemns *coitus interruptus* or *Aristotle's Masterpiece*, with its many recipes for potions to cure “blocked menses,” typically a code for early-term abortion.³⁷

Moreover, the narrator of *A New Description* provides economic justifications for birth control. Farmers have to plow, and not everyone is lucky enough to find a barren stretch of ground: “‘Tis a lamentable Thing for a Man to have a large Crop, when his Circumstances can’t afford Houses to keep it in, or Thatch to cover it;

of Medicine Library series, Special Edition (Birmingham, AL: The Classics of Medicine Library: 1990), p. 114.

³⁵ *The Natural History of the Frutex Vulvaria, or, Flowering Shrub* (London: Printed for E. Hill, 1741) in *Eighteenth-Century British Erotica*, vol. 3 (London: Pickering & Chatto, 2002), pp. 43–4.

³⁶ Peakman, *Mighty Lewd Books*, p. 102; McLaren, *Reproductive Rituals*, pp. 57–87.

³⁷ *Onania; or the Heinous Sin of Self-Pollution and A Supplement to the Onania* (1716) *Marriage, Sex, and the Family in England 1660–1800*, vol. 12, ed. Randolph Trumbach (New York: Garland, 1986), p. 99; McLaren, *Reproductive Rituals*, pp. 102–5.

to let it perish would be infamous, and what can a poor Man do" when birth control is not an option? (156). The only avenue open for farmers "who are not bound to their Farms by Lease, [is to] take the Alarm at this ominous Swelling, and fly the Country as soon as they perceive it"—a solution that's no solution at all (172). For the farmer who was bound by a lease, however, the options could be even grimmer. In his *Collection of Preternatural Cases* (1764), Smellie recounts a tragic story of a Scottish couple. The wife had a deformed pelvis, and after two labors that ended with craniotomy (the practice of opening the skull of a fetus, living or dead, to progress labor and save the woman's life), the husband begs the doctor to "prescribe some medicines" to make his wife barren. Smellie dismisses this belief as a "ridiculous opinion ... amongst the vulgar" despite knowing various herbals that could induce early term abortion. Instead, he instructs the man to call him sooner, promising that earlier intervention could save future babies. The woman goes into premature labor during her third pregnancy and Smellie does manage to bring the baby girl into the world alive, but he damages her arm, paralyzing the child for life. This poor couple, trusting their doctor, suffers through three more pregnancies that end as tragically as the first two.³⁸ Medical men were increasingly hostile towards even married women who sought to end unwanted pregnancies, withholding emmenagogic medicines until pregnancy could definitively be ruled out through manual examination in the fifth month.

Clearly, there was a need for alternatives to abandoning one's progeny or suffering through a succession of stillbirths. *A New Description* surreptitiously offers such options. Phequewell informs the reader that with the "proper cloathing," an explorer can avoid the tropical diseases prevalent in Merryland, referring, of course, to condoms. While the condom is mentioned only as a preventative against sexually transmitted diseases here, the narrator helpfully refers readers to a "Poem in its Commendation" entitled "Armour (1723)," also published by Curr. This poem, which hails the condom's inventor as deserving "More solid Glory, than from Newton's Toil," mentions the condom as a contraceptive before extolling its other wonders.³⁹ Additionally, Phequewell describes "Another submarine Plant ... of the Sponge-kind, the Name of which I have forgot. *They* use it not only as a Cleanser, but also as an Antidote against the bad Effects of the Juice above mentioned [pregnancy]" (170, emphasis added). While inadvertently revealing here his own ignorance about female practices, Stretzer clandestinely informs readers of both sexes about contraceptive methods that were available, perhaps to encourage them to seek out more information or to try out the techniques for themselves.

³⁸ William Smellie, *A Collection of Preternatural Cases and Observations in Midwifery*, 3 vols, new edn (London, 1775), vol. 3, pp. 220–23.

³⁹ "Armour. An Imitation of the Splendid Shilling," in Patrick Spedding (ed.), *The Geography and Natural History of Mid-Eighteenth-Century Erotica*, in Alexander Pettit and Patrick Spedding (eds), *Eighteenth-Century British Erotica*, 5 vols (London: Pickering & Chatto, 2002), vol. 3, pp. 273–80.

The above-cited passage is interesting for more than its family-planning advice. Its use of an obviously female “they” challenges critical readings that have interpreted the “Inhabitants” of Merryland as all or mostly male. This feminine “they” offhandedly occurs midway through the pamphlet, suggesting that the presence of female inhabitants was assumed. While many “Inhabitants” are indubitably male, in other places, the “People” are ambiguously gendered. In Chapter III, which describes the dangers posed “by the Heat of the Climate in Merryland,” the incautious “People” who rush into the Country without proper clothing could be read as only men; however, if we interpret Merryland as not only the female body, but mutual sexual pleasure, then the “People” being advised to proceed with caution into Merryland could be male or female, as both genders were afflicted by venereal disease.

Again, when Stretzer justifies contraception, it is not men who are dismayed by large families and who seek to prevent them, but “People,” indicating that this was a concern shared by men and women. At another place, the reader learns the indigenous red coral plant “has a bad Effect on some *People*, causing a large Tumor in the Umbilical Regions” (169, emphasis added). In this instance, the Merryland “People” are definitely not men. Infants are also described as “the younger sort of People” who enjoy the “wholesome Liquor” that spurts from the BBY mountains. Not only are many of the various “People” women, but the entire country is ruled by a plethora of absolute Queens, one “over each particular Province, whose Power is unlimited; no Tyrants having ever required a more servile and blind Submission than the Queens of Merryland” (176–7).

Although there is no textual evidence to suggest that Stretzer excluded women from Merryland, interpreting the text as a monolithic male power fantasy requires such an exclusion. In her reading of the text, Darby Lewes completely elides the Queens of Merryland: “The only sentient beings in Merryland are male invaders, who seize control of the land, and their male offspring.”⁴⁰ Still working within the paradigm of imperial rape fantasy, Sharon O’Toole Dubois has corrected this misreading, arguing that the fragmented nature of Merryland reveals a subversive feminine power that undermines “the fixity of women’s sexual and social roles” and a masculine fear of uncontrollable female sexuality. She reintroduces the Queens as opening up a space for “utopian selfhood for (British) women by invoking them as colonial autocrats [This] draws attention to a troubled site of contested political and social power that has served to illuminate some of the contradictions concerning early models of female subjecthood in the conflicted practices of colonial power.”⁴¹

Dubois’s insights into the subversive feminine power inherent in the text are insightful; nevertheless, the insistence on reading *A New Description* merely as a male rape fantasy only works if critics *misread*—if they attempt to fix slippery,

⁴⁰ Lewes, *Nudes from Nowhere*, p. 121.

⁴¹ Sharon O’Toole Dubois, “Merryland: Gender and Power in an Eighteenth-Century Pornotopia,” *Utopian Studies* 11/2 (2000): pp. 77–87.

ambiguous terms to a single male referent. Moreover, as Lynn Hunt asserts, European pornography had long been associated with materialist philosophies that “required women [to] be materially or sexually equivalent to men; otherwise, all bodies in nature would not be equally mechanical.”⁴² Both men and women could be taken apart, their appendages reified and equated in, what remains in the end, a primal vaginal world, the womb of the World Mother, of Mother Nature.

Part of this misapprehension comes from the assumption that this is a male author writing to and for prurient male readers. However, women in the Enlightenment era produced, marketed, and purchased erotic materials.⁴³ Although Karen Harvey suggests the scientific joking and the masculinist perspective in “erotica” points toward a middling to elite male audience, this does not necessarily preclude the possibility that some women also read the pamphlet.⁴⁴ To outright exclude women as potential consumers would be to reduce the market and potential sales, an unlikely move for business-savvy Curll, Grub Street’s Larry Flint.⁴⁵ Indeed, in *Merryland Displayed*, Stretzer bemoans the fact that women have been reading *A New Description*: “I am sorry to find that some of the Fair-Sex, as well as the Men, have too freely testified their Approbation of this *pretty* Pamphlet, as they call it, and that over a Tea-Table some of them make no more scruple of mentioning *Merryland*, than any other Part of Creation” (5).

If we take Stretzer’s word for it, questionable as it is, women enjoyed reading and discussing his pamphlet; moreover, he seems to indicate that it had a potentially empowering effect by giving women a new vocabulary with which to discuss their bodies in public. And why could women not read and enjoy *A New Description*? Far from being a male rape fantasy, this pamphlet celebrates female sexual pleasure with a gusto that destabilizes masculine power and reverses societal gender roles. Women have all the power in *Merryland*—and over their merrylands. There, men have to work to please their particular Queen, be she wife, mistress, or prostitute, or they risk being cast aside and replaced. Roger Phequewell does not merely boast to other men of sexual prowess, but he advertises to picky Queens, who are free to reject him if his merchandise does not live up to its promise.

The somatic metaphor of woman-as-land does not, in this instance, merely present reified woman exposed to masculine domination and abuse. The fragmented, multivalent nature of *A New Description of Merryland* leaves the text open to a multiplicity of readings, many of which are potentially empowering for women. While foreplay is described using siege and battle imagery (female agonophila), the absolute power of the Queens and the pronounced focus on female orgasm assure that reading this as a rape fantasy is nonsensical.

⁴² Hunt, “Introduction,” p. 38.

⁴³ Peakman, *Mighty Lewd Books*, pp. 35–9.

⁴⁴ Harvey, *Reading Sex*, 20–33.

⁴⁵ Peakman, *Mighty Lewd Books*, p. 40; and Ralph Strauss, *The Unspeakable Curll* (London: Chapman and Hall, 1927), pp. 1–7; Paul Baines and Pat Rogers, *Edmund Curll, Bookseller* (Oxford: Clarendon Press, 2007), pp. 1–6; pp. 291–5.

Doing so attempts to force the text into a critical paradigm that blindly interprets all somatic metaphors as imperial rape. This reductive stance cripples the interpretive possibilities inherent in *A New Description*. It ignores the gender role reversals in this imperial fantasy, while shutting the possibility of reading Stretzer's text as a parody of the sexualized (and frequently sexist) language of the masculine genres of science, travel, and natural history that the paradigm seeks to expose. Even if we continue to choose to interpret *A New Description* as primarily a masculinist text written for a prurient male readership, the very celebration of female sexuality and, more importantly, female pleasure, undermines attempts to reify and control the feminine.

Over the course of the eighteenth century, scientists continued to assert biological imperative in fixed gender roles, strengthening the cultural conditioning that increasingly locked "proper" women into demur angels of the households. Texts like Thomas Stretzer's *A New Description of Merryland* subverted the dominant ideology by creating space for positive female sexual expression outside the procreative norm. Moreover, by pushing the eroticized language of geography, natural history, and medicine *ad absurdum*, Stretzer's bawdy pamphlet holds up for ridicule the men of science, whose dirty minds have caused them to see and inscribe coitus into every aspect of the natural world.

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PART 3

Charting Knowledge, Mapping Encounters

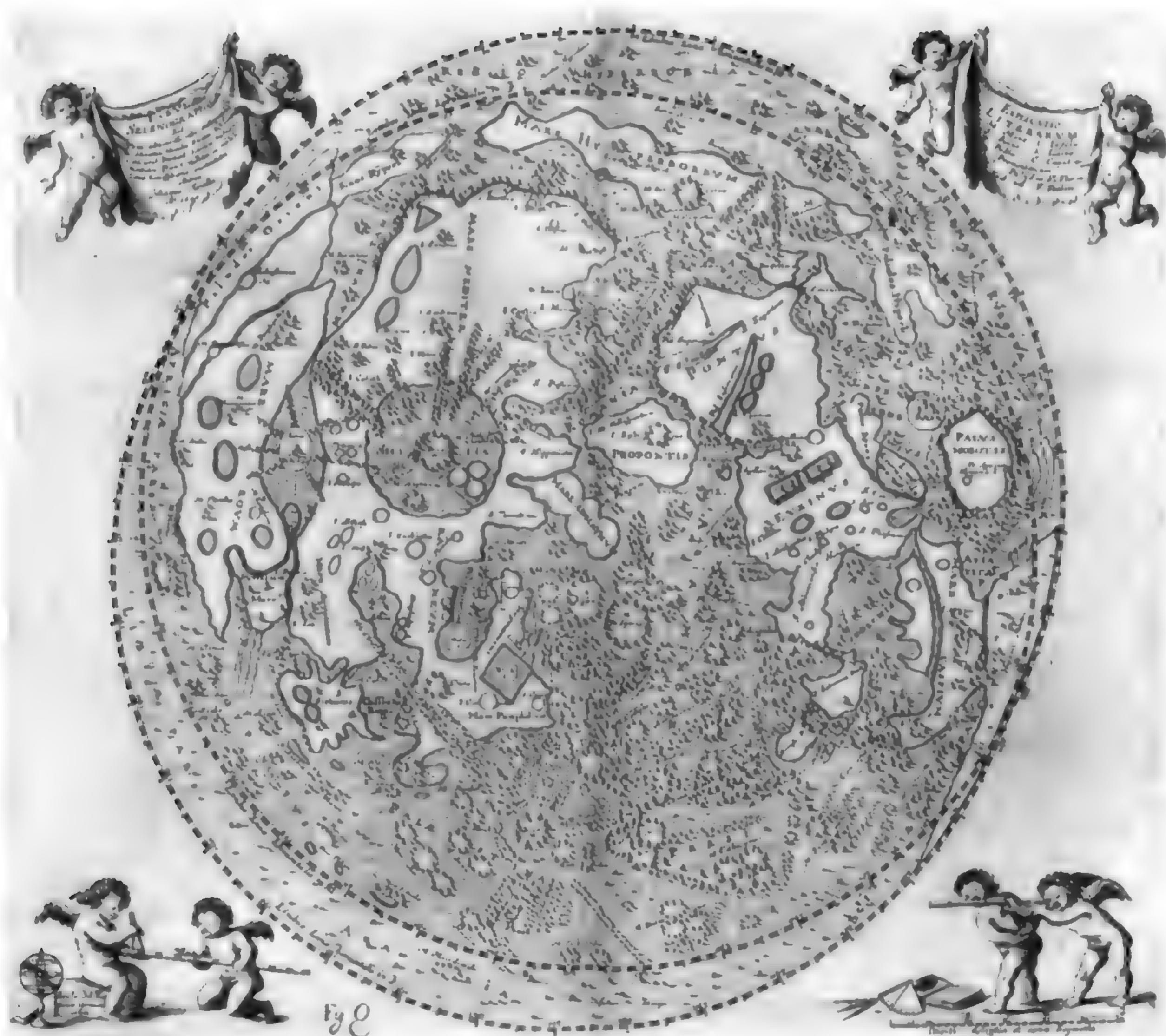


Fig. Pt.3 Map of the Moon. From Johannes Hevelius's *Selenographia* (1647). This item is reproduced by permission of The Huntington Library, San Marino, California, RB 751851.

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Chapter 9

Telescopic Voyages: Galileo and the Invention of Lunar Cartography

Howard Marchitello

Keplar doubts not, but that as soone as the art of flying is found out, some of their Nation will make one of the first colonies that shall inhabit that other world.

—John Wilkins, *The Discovery of a World in the Moone*

The 1610 publication of Galileo's *Sidereus Nuncius* had a profound impact upon European understandings of the nature of the universe and the place of humankind in it.¹ This book's "unfolding [of] great and wonderful sights" (as the title page reads) "about the face of the Moon, countless fixed stars, the Milky Way, nebulous stars, but especially about four planets flying around the star of Jupiter" (26) managed to set off "a chain of events that was to shake the intellectual edifice of Europe to its foundations."² The unprecedented impact this book would make was the result of the discoveries themselves and their transformative consequences for our understanding of the cosmos, on the one hand, and, on the other, the significance of the instrument that ushered in this new dawn of world knowledge: the telescope. Galileo's first sentence makes these claims explicit:

In this short treatise I propose great things for inspection and contemplation by every explorer of Nature. Great, I say, because of the excellence of the things themselves, because of their newness, unheard of through the ages, and also because of the instrument with the benefit of which they make themselves manifest to our sight. (35)

In this essay, I would like first to consider the consequences, both imaginative and scientific, of the telescope itself on what we might call *literary* responses to Galileo's observations: the lunar voyage. While there were certainly pre-Galilean—indeed,

¹ Galileo Galilei, *Sidereus Nuncius, Or, The Sidereal Messenger*, trans. Albert van Helden (Chicago and London: University of Chicago Press, 1989). All subsequent references are to this edition and cited internally. References to van Helden's editorial material will be by "van Helden" and followed by the page number(s). *Sidereus Nuncius* is also printed (abridged, and under the title *Starry Messenger*) in *Discoveries and Opinions of Galileo*, trans. Stillman Drake (New York: Anchor Books, 1957), pp. 21–58.

² van Helden, p. 1.

even ancient—versions of this fantasy, in the aftermath of Galileo’s telescopic observations, the lunar voyage not only takes on a new urgency but also, as some writers in the period argued, a new plausibility. Armed with a knowledge of Galileo’s telescopic discoveries, lunar writers after *Sidereus Nuncius*, including Johannes Kepler with *Conversation with the Sidereal Messenger* (1610) and *Somnium* (1634), and especially important to the present discussion, John Donne with *Ignatius His Conclave* (1611) and John Wilkins with *Discovery of a World in the Moon* (1638), create lunar narratives based not on mere fancy, but rather, as they saw it, on new “scientific” fact.

But what exactly were the “new scientific facts” that these writers encountered? When these writers considered the new cosmological world, what were its significant features? And how did these new cosmological realities shape their own texts? In the following pages, I would like to propose answers to these questions in order to understand the form or forms that the literary lunar narrative takes in the face of the new cosmos. I begin with a review of Galileo’s epochal discoveries presented in *Sidereus Nuncius*. I will then consider three distinct responses: Kepler’s *Conversation*, Donne’s *Ignatius*, and then conclude with a reading of Wilkins’s *Discovery*.

Galileo’s *Sidereus Nuncius* indeed ushered a new world into existence. Or, as Galileo was careful to argue over the ensuing decades and against frequently hostile criticism, since that world had existed all along and merely awaited its discovery, Galileo’s new world was *new* entirely as an object of human knowledge (see Figure 9.1). As such, then, part of Galileo’s burden in *Sidereus Nuncius* is to tell the linked stories of the “new” objects themselves and the invention of the scientific means of their discovery.³ The catalog of these objective and methodological discoveries is singularly impressive and unprecedented in the history of science. In this account, detailing the results of only a few weeks of observation, *Sidereus Nuncius* introduces the methods and protocols of telescopic celestial observation (thereby marking the functional end-point of naked-eye observation), a radically re-conceived moon, an exponential increase in the number of so-called fixed stars (virtually to the point of infinity), and the previously unimagined moons in orbit around Jupiter. The consequences of these achievements meant not only the necessary rare vision of cosmology, but also—and no doubt even more problematically for some people, including, eventually, the Office of the Inquisition—the necessary end to the Aristotelian universe and the Aristotelian natural history that had held sway for centuries, to say nothing

³ There is in fact a third story told through *Sidereus Nuncius*. In addition to the means and the objects of discovery, Galileo’s text also faces the burden of how to represent and communicate these discoveries. It is in this further regard, within the history of the representation of scientific knowledge in print, that Galileo’s text is especially significant and important. In addition to the narratives his text communicates, Galileo also offered illustrations (of various kinds) that were meant not only to communicate but quite literally to *embody* new scientific knowledge.



Fig. 9.1 Galileo with Astronomy, Perspective, and Mathematics. From *Opere di Galileo Galilei* (1655–1656). This item is reproduced by permission of The Huntington Library, San Marino, California, RB 497272.

of the Christian orthodoxy that found Aristotelian cosmology so hospitable. The discovery of the true nature of the moon meant, in short, the abandonment of a whole philosophy of nature.

Viewing the moon through his “spyglass” so that it appears “about 27,000 times larger than when observed only with the naked eye,” produced, in effect, a new moon as a matter of demonstrable fact:

Anyone will then understand with the certainty of the senses that the Moon is by no means endowed with a smooth and polished surface, but is rough and uneven and, just as the face of the Earth itself, crowded everywhere with vast prominences, deep chasms, and convolutions. (35–6)

In describing the surface of the moon, Galileo employs an explicitly analogical thinking that understands the moon and the earth to be composed of similar matter and to be more alike than unalike. Based upon repeated telescopic observation, Galileo writes,

we have been led to the conclusion that we certainly see the surface of the Moon to be not smooth, even, and perfectly spherical, as the great crowd of philosophers have believed about this and other heavenly bodies, but, on the contrary, to be uneven, rough, and crowded with depressions and bulges. And it is like the face of the Earth itself, which is marked here and there with chains of mountains and depths of valleys. (40)

Galileo’s first illustration depicts the clearly jagged lunar terminator separating the illuminated from the darkened portion of the crescent moon (the terminator would be uniformly oval if the moon were in fact a perfect sphere). Galileo draws our attention, verbally and visually, to those points of light visible on the otherwise completely darkened portion. These points of light, with consistent patterns of illumination and shadow, indicate prominences on the supposedly perfectly solid and spherical surface of the moon. Galileo substantiates his claim for lunar mountains by invoking a wholly earth-bound phenomenon:

And we have an almost entirely similar sight on Earth, around sunrise, when the valleys are not yet bathed in light but the surrounding mountains facing the Sun are already seen shining with light. And just as the shadows of the earthly valleys are diminished as the Sun climbs higher, so those lunar spots lose their darkness and the luminous part grows. (41)⁴

Galileo demonstrates other conclusions based upon his lunar observations, including the fact of earth-shine, for instance, together with the appearance of the moon during an eclipse, which help to demonstrate the crucial fact that the moon

⁴ In addition to lunar mountains, the earth-moon homology is also underwritten by Galileo’s demonstration of a lunar atmosphere, an erroneous interpretation that Galileo later will explicitly reject.

is naturally dark and only reflects the light of the sun (or the sun's light reflects from the earth onto the moon). Galileo also addresses the matter of the moon's rotation, or cycle, around the earth and the relative age of the dark spots on the surface in relation to the lesser age of what we know as craters, among other lunar characteristics. All of these lunar observations lead Galileo to predict his more complete and thorough articulation in a book that would have as its ultimate objective the demonstration of the Copernican nature of the universe:

We will say more in our *System of the World*, where with many arguments and experiments a very strong refection of solar light from the Earth is demonstrated to those who claim that the Earth is to be excluded from the dance of the stars, especially because she is devoid of motion and light. For we will demonstrate that she is movable and surpasses the Moon in brightness, and that she is not the dump heap of the filth and dregs of the universe, and we will confirm this with innumerable arguments from nature. (57)

The revolution of *Sidereus Nuncius* continues, with Galileo having turned his telescope and his attention next to the fixed stars and then to observations of the "Medicean planets," so named in honor of Galileo's patron, Cosimo de Medici, orbiting Jupiter. As suggested above, the immediate consequence of aiming the telescope into space was the revelation of a virtual infinity of stars. This is evident perhaps most dramatically when Galileo studies constellations, and he offers, in fact, illustrations of two: Orion and the Pleiades. This becomes even more of a revelation when he examines nebulae and the Milky Way. Galileo draws the striking conclusion:

What was observed by us ... is the nature or matter of the Milky Way itself, which, with the aid of the spyglass, may be observed so well that all the disputes that for so many generations have vexed philosophers are destroyed by visible certainty. And we are liberated from wordy arguments. For the Galaxy is nothing else than a congeries of innumerable stars distributed in clusters. (62)

The matter of the Medicean planets, arguably the most revolutionizing discovery reported in *Sidereus Nuncius*, constitutes a further defeat of Aristotelian-Christian cosmology as it makes clear that the universe may indeed feature multiple centers of gravity—locations or points around which other objects orbit. In the Ptolemaic world system, underwritten by Aristotelian mechanics, the single centre of gravity around which celestial objects revolved was the earth. The Jovian moons explode that notion utterly, together with the philosophical-religious discourses that were constructed, in part, upon it.

As one would expect, the astronomical discoveries revealed through the telescope and published in *Sidereus Nuncius* were contested, and independent confirmation was initially slow in arriving. This was itself the consequence of the great superiority of Galileo's telescopes from the lower-powered spyglasses available in many cities across Western Europe at that moment. Indeed, independent telescopic confirmation of Galileo's discoveries, when they came,

were achieved through telescopes provided by Galileo himself. Within a few months of the publication of *Sidereus Nuncius*, and in spite of numerous attacks (largely personal) levied against Galileo, confirmations offered by a wide range of astronomers, scholars, and even churchmen helped convince learned Europe of the truth of Galileo's observations. Among those offering powerful endorsements were two highly influential figures: Johannes Kepler, Imperial Mathematician, and the Collegio Romano. The latter provided something like political cover for Galileo and his discoveries, while the former provided Galileo the public approval—and praise—of Europe's most famous and important astronomer.

But even before Kepler had used one of Galileo's telescopes to confirm the existence of the Jovian satellites, confirmation which came in the form of the publication in late 1610 of Johannes Kepler's *Narration about Four Wandering Companions of Jupiter Observed by Him*, Kepler had written an immediate reply to *Sidereus Nuncius* that confirmed and celebrated Galileo's great discoveries. In this letter, sent to Galileo in April 1610 and published in May as *Dissertatio cum Nuncio Sidereo [Conversation with the Sidereal Messenger]*, Kepler acknowledges that his acceptance of the new discoveries "may perhaps seem rash," but he defends his decision: "But why should I not believe a most learned mathematician, whose very style attests the soundness of his judgment?"⁵ Through the course of this letter, Kepler celebrates Galileo's discoveries, confirms their actual existence (and the fact that they are not merely the results of aberrations of an untrustworthy implement, as some had argued), offers advice (on matters such as ways to understand and correct the phenomenon of spherical aberration in telescopic observation), and draws conclusions about the *meanings* of Galileo's discoveries.⁶

Among the meanings Kepler derives from Galileo's new celestial objects, such as the irregular and earth-like moon, the infinitude of stars, and the Jovian satellites, the most striking are perhaps those he draws concerning the moon. "I cannot help wondering," Kepler admits, "about the meaning of that large circular cavity in what I usually call the left corner of the mouth [of the Man in the Moon]. Is it a work of nature, or of a trained hand? Suppose that there are living beings on the moon ...?" (27–8). Then, in what van Helden calls Kepler's "typical exuberant style,"⁷ the Imperial Mathematician populates the moon:

It surely stands to reason that the inhabitants express the character of their dwelling place, which has much bigger mountains and valleys than our earth has. Consequently, being endowed with very massive bodies, they also construct gigantic projects. Their day is as long as 15 of our days, and they feel insufferable heat. Perhaps they lack stone for erecting shelters against the sun.

⁵ Johannes Kepler, *Kepler's Conversation with Galileo's Sidereal Mesesnger*, trans., intro., and notes Edward Rosen (New York: Johnson Reprint, 1965), pp. 12–13.

⁶ Perhaps the most interesting and prescient conclusion Kepler draws is his argument, based on his understanding of optics and telescopic observation that "that whole immense space is a vacuum." See *Kepler's Conversation*, p. 19.

⁷ van Helden, p. 96.

On the other hand, maybe they have a soil as sticky as clay. Their usual building plan, accordingly, is as follows. Digging up huge fields, they carry out the earth and heap it in a circle, perhaps for the purpose of drawing out the moisture down below. In this way they may hide in the deep shade behind their excavated mounds and, in keeping with the sun's motion, shift about inside, clinging to the shadow. They have, as it were, a sort of underground city. (28)⁸

Kepler is clearly serious about these speculations; in fact, he will later write an entire work, a lunar geography entitled *Somnium*, that continues this effort. Nevertheless, he writes against a long tradition in which lunar narratives—journeys there, for instance, and the ensuing encounters with lunar inhabitants—are explicitly satirical in nature and intent.⁹ The list holds many examples, including Lucian's *A True Story* and Plutarch's *The Face of the Moon*, to name two important classical instances. But is Kepler's scientific speculation about the nature of the moon and its imagined (or predicted) inhabitants the form that such wonderings take in the new scientific dispensation that follows upon *Sidereus Nuncius*? Is the lunar satire still a viable form in the aftermath of telescopic lunar astronomy? The answer to these questions, perhaps not surprisingly, is that both the scientific form and the satiric form of the lunar fantasy, if I can employ that term, continue side by side after Galileo's discoveries and Kepler's theorizations about lunar inhabitants and their underground cities.¹⁰

We may, however, see an example of both forms inhabiting the same text if we look to John Donne's 1611 satire on the Jesuits, written in full knowledge of the new cosmology, *Ignatius His Conclave*.¹¹ Like many lunar voyage narratives, including Kepler's *Somnium*, Donne's narrator begins by recounting the dream-like state in which he experienced the fantastic events he sets out to describe. Although there is much at work in Donne's satire, and the political context of his book is complex and important, I would like to focus on the quality of the satire's relationship to what Donne elsewhere famously calls "the new philosophy."¹²

⁸ Such speculation persists, literally, for centuries. See Ewen A. Whitaker, *Mapping and Naming the Moon: A History of Lunar Cartography and Nomenclature* (Cambridge: Cambridge University Press, 1999), esp. chapters 1–7.

⁹ Kepler's *Somnium* was published posthumously in 1634, though it was almost certainly written within a few years of Galileo's *Sidereus Nuncius*. It is available in English, together with a useful introduction, in John Lear, *Kepler's Dream* (Berkeley and Los Angeles: University of California Press, 1965).

¹⁰ What can be said to happen, I would argue, is that these two forms spilt and separate still further into two distinct (and perhaps largely non-communicating) forms: a literary form that will eventually become science fiction, on the one hand, and the development of lunar cartographic and "geographic" science of the type practiced by Hevelius, on the other.

¹¹ John Donne, *Ignatius His Conclave* (London, 1611). For a modern edition that includes both the original Latin and the English translation (which is probably Donne's own), see T.S Healy, ed., *Ignatius His Conclave* (Oxford: Clarendon Press, 1969). Reference to this text will be by internal citation.

¹² John Donne, "An Anatomy of the World: The First Anniversary" (l. 205), in *John Donne*, ed. John Carey (Oxford: Oxford University Press, 1990).

As is made clear in the opening paragraph of the satire, this relationship has explicitly to do with the new astronomy and cosmology. Donne's book is, in fact, one of the earliest of the English responses to *Sidereus Nuncius*.

If it is the case that the literary lunar voyage had long been in many ways an ideal form for the satirist to critique and ridicule the often fanciful, or perhaps outrageous, narratives of travel found either in histories or in travel narratives, then the prospect of a lunar voyage in a hypothetically Galilean universe held perhaps still greater promise.¹³ The narrator reports that "in an *Extasie*," his soul free and at "liberty to wander through all places, and to survey and reckon all the roomes, and all the volumes of the heavens" considers "the dimensions, the nature, the people, and the policy, both of the swimming Ilands, the *Planets*, and all of those which are fixed in the firmament." But he stops himself short:

Of which, I thinke it an honester part as yet to be silent, then to do *Galilaeo* wrong by speaking of it, who of late hath summoned the other worlds, the Stars to come nearer to him, and give him an account of themselves. Or to *Keppler*, who (as himselfe testifies of himselfe) *ever since Tycho Braches death, hath received it into his care, that no new thing should be done in heaven without his knowledge.* (2–3)

The plot of *Ignatius* tells the story of the narrator's journey to hell where he witnesses a contest for the seat of honour nearest to Lucifer's throne. The terms of the competition are set and clear: whoever can lay claim to having introduced the greatest innovation in the world, "they that gave affront to all antiquitie, and induced doubts, and anxieties, and scruples, and after, a libertie of beleeving what they would; at length established opinions, directly contrary to all established before" (6), will win the place of honor next to hell's king. There are many claimants when the narrator arrives on the scene: Boniface III, Mahomet, and the Franciscans. And more continue to arrive, including "a certaine *Mathematitian*," who beats on the door demanding entry: "Are these shut against me, to whom all the Heavens were ever open, who was a Soule to the Earth, and gave it motion?" The narrator supplies the identification: "By this," he declares, "I knew it was *Copernicus*" (12). When Lucifer asks who has arrived, Copernicus responds:

I am he, which pitying thee who wert thrust into the Center of the world, raysed both thee, and thy prison, the Earth, up into the Heavens; so as by my meanes *God* doth not enjoy his revenge upon thee. The Sunne, which was an officious spy, and a betrayer of faults, and so thy enemy, I have appointed to go into the lowest part of the world. Shall these gates be open to such as have innovated in small matters? and shall they be shut against me, who have turned the whole frame of the world, and am thereby almost a new Creator? (13–14)

¹³ Lucian's *A True Story*, as an example, seems dedicated to the abuse of such tales of travel and wonder; his particular target (among many) seems to be Herodotus.

Copernicus's bid for priority is not, however, successful. For at the right hand of Lucifer stands Ignatius Loyola, the true object of Donne's satire, and he is able to refute Copernicus and send him silently away:

[W]hat new thing have you invented, by which our *Lucifer* gets any thing? What cares hee whether the earth travell, or stand still? Hath your raising up of the earth into heaven, brought men to that confidence, that they build new towers or threaten God againe? Or do they out of this motion of the earth conclude, that there is no hell, or deny the punishment of sin? Do not men beleeve? do they not live just, as they did before? (18)¹⁴

Copernicus is thus dismissed, and after him all other claimants are as well, including Paracelsus, Machiavelli, and Columbus, among others, each dispatched through the intervention of Ignatius. Lucifer understands Ignatius's true worth in hell, but realizing, too, that he "can neither find in others, deserts worthy of this place, nor any roome in this place worthy of your deserts," and, further, that he "may neither forsake this kingdome, nor divide it," he hits upon "this onely remedy" left:

I will write to the Bishop of *Rome*: he shall call *Galilaeo* the *Florentine* to him; who by this time hath thoroughly instructed himselfe of all the hills, woods, and Cities in the new world, the *Moone*. And since he effected so much with his first *Glasses*, that he saw the *Moone*, in so neere a distance, that hee gave himselfe satisfaction of all, and the least parts in her, when now being growne to more perfection in his Art, he shall have made new *Glasses*, and they received a hallowing from the *Pope*, he may draw the *Moone*, like a boate floating upon the water, as neere the earth as he will. And thither ... shall all the Jesuites bee transferred, and easily unite and reconcile the *Lunatique Church* to the *Romane Church*; without doubt, after the Jesuites have been there a little while, there will soone grow naturally a *Hell* in that world also: over which, you *Ignatius* shall have dominion, and establish your kingdome & dwelling there. (116–18)

Lucifer's vision of Ignatius's dominion does not end, however, with the "*Lunatique Church*," as he goes further to imagine Ignatius may "passe from the *Moone* to the other *starrs*, which are also thought to be worlds, & so you may beget and propagate many *Hells*, & enlarge your *Empire*, & come nearer unto that high seate, which I left at first" (118).

At this point in the text, it is difficult to establish which receives greater scorn, Ignatius or Galileo's new world. And although Donne's text is certainly situated within the controversialist context of the first decade of the reign of James VI

¹⁴ Donne's Ignatius refines his objections to Copernicus's claim for innovation, arguing "that those opinions of yours may very well be true. If therefore any man have honour or title to this place in this matter, it belongs wholly to our *Clavius*, who opposed himselfe opportunely against you, and the truth, which at that time was creeping into every mans minde." See *Ignatius*, p. 19.

and I, and therefore his objectives are generally religious or, more precisely, denominational in nature, his two objects of satire are imagined as inseparable. But this fact itself serves to mark how Galileo's telescope had impacted the literary form of the lunar voyage, at least in its satirical version. But while the lunar voyage was frequently or generally satiric in nature, there were other possibilities and other forms available. Indeed, as suggested above, Kepler's own *Conversation* and his later *Somnium* are both instances of post-Galilean or *telescopic* lunar narratives, neither of which is satiric. Rather, they provide the writer the opportunity to re-imagine the moon as it may truly exist, as well as the form of the lunar narrative, and the promise it may have in the new cosmology.

In the English tradition, one of the first texts to undertake these roles is John Wilkins's *The Discovery of a World in the Moone; Or, A Discourse Tending to Prove, that 'tis probable there may be another habitable world in that Planet* (1638).¹⁵ Wilkins was a clergyman, serving in numerous positions, including chaplain to Charles Louis (nephew of Charles I and later Elector Palatine), and the Bishop of Chester; he also served as warden of Wadham College, Oxford and later as Head of Trinity College, Cambridge. He was a founding member of the Royal Society, serving as the Society's first secretary (1662–1668). He was married to Robina Cromwell, sister of Oliver, a fact that, along with his support of the Parliamentarians, bore certain negative consequences for Wilkins's professional life after the restoration of the crown. Wilkins's intellectual interests were varied and tended often toward the scientific; he published books on cryptography (*Mercury, Or the Secret and Swift Messenger* [1641]), universal language (*An Essay Towards a Real Character and a Philosophical Language* [1668]), religious duty and obligation (*Of the Principle and Duties of Natural Religion* [1675]), as well as books on providence, prayer, music, mathematics and geometry, preaching, and an “alphabetical dictionary,” in addition to various individual and collected sermons.¹⁶

Wilkins's first book, *The Discovery of a World in the Moone*, is of particular interest here, in part because Wilkins is concerned to construe the moon not as an empty, if nevertheless an interesting, celestial body, but rather as a world able and indeed likely to be inhabited. *The Discovery* also represents a new form for the lunar narrative, a form that, like Donne's *Ignatius*, is made possible by Galileo's telescope. But where Donne's speaker finds the new cosmology quite literally laughable, Wilkins is a firm believer in the new world revealed through

¹⁵ *Discovery of a World in the Moone* (London: Printed by E.G. for Michael Sparke and Edward Forrest, 1638). The text is also available in a facsimile edition, intro. Barbara Shapiro (Delmar, NY: Scholars' Facsimiles & Reprints, 1973). Subsequent references to this text are by internal citation.

¹⁶ Wilkins is represented in Aubrey's *Brief Lives*. See *Brief Lives. Edited from the original manuscripts and with a life of John Aubrey*, ed. Oliver Lawson Dick, foreword by Edmund Wilson (Ann Arbor: University of Michigan Press, 1957). Barbara Shapiro's book *John Wilkins, 1614–1672; An Intellectual Biography* (Berkeley: University of California Press, 1969) is the definitive modern study of Wilkins's life.

telescopic observation. Moreover, like Kepler before him, Wilkins is interested in extending that new world through something like scientific speculation. But as I will discuss below, for Wilkins, scientific speculation is never separate (or, even, separable) from his other “non-scientific” interests. *The Discovery*, in fact, serves as a powerful demonstration of intellectual activity in the early modern period that resists easy classification into strictly-policed domains, either of science or of Humanistic inquiry. As such, Wilkins’s book bears witness to a period and to a set of mental habits that themselves pre-date the great division of intellectual inquiry into “science” and “non-science.”

Wilkins begins his book, both in the prefatory letter to the reader and in the first of 13 Propositions, by confronting directly what he probably rightly assumes will be his readers’ prejudice against the very idea his book intends to address. Wilkins advises the reader of his book “to come unto it with an equall minde, not swayed by prejudice, but indifferently resolved to assent unto that truth which upon deliberation shall most probable unto thy reason.” If the reader approaches the book with this attitude of open-mindedness, Wilkins writes, “then I doubt not, but either thou wilt agree with mee in this assertion, or at least not thinke it to be as farre from truth, as it is from common opinion” (A3). And in his epistle, Wilkins is careful to locate the main assertion he will present within a favourable context: not only was this the same assertion argued, as he says, by “Many ancient Philosophers of better note,” but it would be a serious (though not uncommon) mistake “for us to thinke, that amongst the ancient variety and search of opinions, the best hath still prevailed.” Wilkins then appeals to a more modern, and presumably unimpeachable, authority: “Time (saith the learned *Verulam*) seemes to be of the nature of a river or stremme, which carrieth downe to us that which is light, or blowne up, but sinketh that which is weighty and solid” (A4). Wilkins makes clear his Baconian intention: “It is my desire that by the occasion of this discourse, I may raise up some more active spirit to a search after other hidden and unknowne truths” (A4–A4^V).

Having given fair warning to his readers, Wilkins devotes the first several Propositions, which function effectively as chapters in his book, to establishing the viability of lunar study on the one hand and the exact scientific nature of the moon itself on the other. Proposition I: “That the strangenesse of this opinion is no sufficient reason why it should be rejected” is dedicated to establishing the reasonableness of entertaining novel ideas, even if they seem at first glance to be ridiculous. “How did the incredulous World gaze at *Columbus*,” Wilkins asks, “when hee promised to discover another part of the earth?” (3).¹⁷ The answer is not far to seek:

¹⁷ There is a similar moment in another English lunar narrative, Francis Godwin’s *The Man in the Moone: Or, A Discourse of a Voyage Thither* (London, 1638). In the epistle to the reader, Godwin writes, “In substance, thou hast here a new discovery of a new world, which perchance may finde little better entertainment in thy opinion, than that of *Columbus* at first, in the esteeme of all men” (p. A3^v). Godwin’s is an interesting lunar narrative,

It hath alwaies beene the unhappinesse of Philosophy, to be derided by those that are ignorant of the causes of things, and rejected by others whose perversenesse ties them to the contrary opinion, men whose envious pride will not allow any new thing for truth which they themselves were not the first inventors of. (3–4)

At the same time, “Gross absurdities have beene entertained by generall consent” (12). As evidence, Wilkins points to the example of ancient beliefs about the nature of lunar eclipses and the reactive practices of ancient peoples, citing for example Plutarch’s Romans, “the most civill and learned people in the world,” who responded to “a Lunary eclipse” by “sound[ing] brasse Instruments, and hold[ing] great torches toward the heaven” in the hopes of easing the moon in its evident “labour.” Wilkins clarifies the nature of these practices: “Now the reason of all this their ceremonie, was, because they feared the world would fall asleepe, when one of its eyes began to winke, and therefore they would doe what they could by loud sounds to rouse it from its drowsinesse, and keepe it awake by bright torches, to bestow that light upon it which it began to lose” (13–14).

Modern telescopic observation has revealed the unreasonableness of both the automatic rejection of novelty and the adherence to error based merely on general consent. The telescope has also revealed the true nature of the surface of the moon and as such has generated a new moon to our senses and to our understanding.¹⁸ At the same time, such discoveries as Galileo described as emerging from the use of the telescope—and, indeed, the very books that catalogued and narrated these new objects and the methods of their discovery—served also to confirm for Wilkins certain ideas and intuitions he in fact had already held. “I must needs confesse,” he writes,

though I had often thought with my selfe that it was possible there might be a world in the Moone, yet it seemed such an uncouth opinion that I never durst discover it, for feare of being counted singular and ridiculous, but afterward having read *Plutarch*, *Galilæus*, and *Keplar*, with some others, and finding many of mine owne thoughts confirmed by such strong authority, I then concluded that it was not onely possible that there might bee, but probably that there was another habitable world in that Planet. (22–3).

This newfound confidence in his own native intellect and intuition spurred on by new astronomy and its books, together with cosmological innovations of the first decades of the seventeenth century, enable or even require further study and speculation. Wilkins intends to provide both: the former largely in the form of a popularizing account of the current state of astronomical and cosmological affairs in the telescopic world, adopted largely from Galileo, and the latter in the form of questions and

especially in that its obvious satire (nationalistic in nature) is completely absent from his descriptions of the new cosmology.

¹⁸ Wilkins is of course not oblivious to the religious or doctrinal dimensions of his inquiry and he accordingly devotes the second Proposition to establishing the legitimacy of his lunar narrative, arguing “That a plurality of worlds doth not contradict any principle of reason or faith.” See *Discovery*, p. 24.

hypotheses about the moon, its status as a world (including its inhabitants), and what human voyagers of the future are likely to encounter on their first lunar voyage.

Propositions III through X are devoted to the detailed description of the nature of the moon as revealed through telescopic observation: that there is demonstrable evidence of change in the heavens; that the moon is “a solid, compacted, a solid, compacted, opacous body body” (57); that the moon does not generate its own light, but merely reflects the light of the sun; that there are stretches of sea and land on the surface of the moon; that there are “high Mountaines, deepe vallies, and spacious plaines in the body of the Moon” (117) as first announced in *Sidereus Nuncius*; and that the moon has “an Atmo-sphæra, or an orbe of grosse vaporous aire” (138). Throughout this section of the book, Wilkins’s debt to *Sidereus Nuncius* is clear and significant, even to the point of the inclusion of diagrams derivative of Galileo’s own and meant to demonstrate the geometry of calculating the altitude of lunar mountains and images of the moon seen through the telescope, illustrating the terminator, for example, or the appearance of lunar mountaintops.

All of these have their (greater) originals in *Sidereus Nuncius*. But, indeed, Wilkins had earlier in his book declared the centrality of Galileo’s observations to his understanding of cosmology, and to the project of his *Discovery*. In Proposition VI, “That there is a World in the Moone, hath beene the direct opinion of many ancient, with some moderne Mathematicians, and may probably be deduced from the tenents of others” (79), Wilkins declares his indebtedness to Galileo and to his marvelous “invention,” the telescope:

[I]n my following discourse I shall most insist on the observation of *Galilæus*, the inventour of that famous perspective, whereby we may discerne the heavens hard by us, whereby those things which others have formerly guest at are manifested to the eye, and plainly discovered beyond exception or doubt, of hich admirable invention, these latter ages of the world may justly boast, and for this expect to be celebrated by posterity. (88)

Wilkins then introduces a story told of the ancient Greek astronomer and mathematician Eudoxus, who desired to be “burnt with Phaeton, so he might stand over the Sunne and contemplate its nature.” Invoking quite explicitly the notion of the telescope itself as the vehicle of transportation that allows for the cosmic voyage that results in greater knowledge, Wilkins declares of Eudoxus, “had hee lived in these daies, he might have enjoyed his wish at an easy rate, and scaling the heavens by this glasse, might plainly have discerned what hee so much desired” (88).

Where Wilkins departs from Galileo’s text is when he seeks to offer his scientific speculations about the *meanings* of a number of Galileo’s lunar discoveries. This begins in earnest in Proposition XI, “That as their world is our Moone, so is our world their Moone” (143). This argument is by no means new to Wilkins; it was present in form very early in the debates triggered by *Sidereus Nuncius*, and, indeed, by Copernicus’s *De revolutionibus* before that. In fact, one of the immediate and standard hostile responses to the heliocentric model of the universe, with the relocation of the earth from the center of the universe—

and of attention—was to argue that it contradicted the principle of what I will call the use-value of the heavens. According to this theory, God displayed the universe for the benefit of humankind; this included the (apparent) movement of the entire dome of the heavens in the span of a single day. It included as well the movement of the known planets and the movement of the moon. Any reorganization of these complicated celestial motions, especially any reorganization that seemed to imply that the heavens were not purely on display for “us,” was dismissed as a form of monstrous ingratitude.

The Copernican model, it was said, violated the use-value of the heavens, since it violated the (teleological) assumption of the centrality of “man.” But as Kepler made clear in his *Conversation*, and in this he was, in effect, following Galileo’s lead and drawing explicit conclusions where the far more cautious Galileo had only offered inferences, the use-value argument was not necessarily discarded in the new cosmology if there were other observers of God’s created universe. This was a key argument for Kepler when attempting to explain the meaning of the Jovian moons that Galileo had discovered:

Our moon exists for us on the earth, not for the other globes. Those four little moons exist for Jupiter, not for us. Each planet in turn, together with its occupants, is served by its own satellites. From this line of reasoning we deduce with the highest degree of probability that Jupiter is inhabited. (42)¹⁹

It is certain, not only from *Conversation* but from many of his other writings, that Kepler is not simply offering a clever argument in order to rescue the Copernican model from heresy. He clearly believes in the logic of this argument: God did not create useless things, and four Jovian moons invisible to the naked eye of people on earth would certainly seem to qualify as “useless,” unless the moons were there to be observed by others. Wilkins, for his part, seems equally convinced by this argument. In his discussion of Proposition XI, “That as their world is our Moone, so is our world their Moone,” Wilkins embraces this argument and, as was the case with Kepler, this argument leads, with the force of logic, to the conclusion that there are inhabitants of other celestial bodies.

“Proposition XIII: That ‘tis probable there may be inhabitants in this other World, but of what kinde they are is uncertain” (187), is that portion of Wilkins’s book that resembles many of the features of the literary lunar voyage. But unlike Donne in *Ignatius*, or any number of previous authors of the literary cosmic voyage, Wilkins never abandons his scientific attitude toward the moon and the idea of its inhabitants, nor does he gesture in the smallest way toward the satiric model of the lunar narrative that was so popular and so common. Instead, in the very considerable scientific and cultural wake of the revolution caused by

¹⁹ As van Helden notes, this “type of reasoning brought Kepler perilously close to rejecting anthropocentrism. He retreated quickly, however, and filled several pages with arguments as to why man should be the noblest creature in a universe with other inhabitants.” See van Helden in *Sidereus Nuncius*, p. 99.

Sidereus Nuncius and Kepler's many important works, Wilkins adopts an altogether different model of the lunar narrative.

Wilkins's first decision in his chapter on lunar inhabitants is to catalogue those most controversial questions that obtain in discussions of the consequences for Christianity should there be living beings on another celestial body and then to decline to respond to them: “[W]hether they are the seed of *Adam*, whether they are there in a blessed estate, or else what meanes there may be for their salvation, with many other such uncertaine enquiries, which I shall willingly omit,” leaving them to others “who have more leisure and learning for the search of such particulars” (186).²⁰ Instead, Wilkins will content himself “only to set downe such notes belonging unto these which I have observed in other Writers” (188).²¹ In many ways this clears the path for Wilkins to include speculations without running the risk of identifying them as his own, even though, of course, he will select those opinions from other writers that seem most pertinent to his understanding of the new nature of the moon and the likelihood of lunar inhabitants. Accordingly, at some considerable length, he makes clear that any discussion of lunar inhabitants, “Selenites” as he will call them (207), will necessarily be highly speculative and involve guesswork, as “There hath not yet beene any such discovery concerning these, upon which wee may build a certainty, or a good probability: well may wee guesse at them, and that too very doubtfully ...” (188–9).²² But it seems that once he confronts the limited knowledge that he *can* have of the Selenites, this realization triggers a consideration of the limitations of knowledge more generally:

What a little is that which wee know? in respect of those many matters contained within this great Universe, this whole globe of earth and water? though it seeme to us to be of a large extent, yet it beares not so great a proportion unto the whole frame of Nature, as a small sand doth unto it; and what can little creatures such as wee discerne, who are tied to this point of earth? (189)²³

All that we may have, Wilkins suggests, is the ability to make informed guesses and that is precisely what he will do regarding the probability of the existence of

²⁰ These were very serious questions for the Roman Catholic Church throughout the period in question. The works of Galileo, in particular, seemed to have triggered great concern, even though Galileo himself went to extreme lengths to establish the harmlessness of the Copernican universe. See, for instance, his *Letter to the Grand Duchess Christina* (1615), reprinted in Drake, pp. 173–216. Of course, the Church, through the same Office of the Inquisition that would later condemn Galileo, had earlier issued a clear verdict on the matter of infinite worlds when it executed Giordano Bruno in Rome's Campo dei Fiori in 1600. See Bruno Ferraro, “Giordano Bruno's *Infinitely Numerous Worlds* and ‘Lunar’ Literature,” in *The European Legacy* 11 (2006): pp. 727–36.

²¹ This page is misnumbered as 186, one of several page numbering errors in the Wilkins text.

²² Misnumbered 186 and 187.

²³ Misnumbered 187.

Selenites on the moon for “why else did Providence furnish that place with all such conveniences of habitation as have been above declared?” (190). Stating once again his unwillingness to engage in theological debates, especially on the vexed matter of Christian salvation for Selenites, who may not be descended of Adam and therefore may not suffer the effects of original sin and who may therefore not need the benefit of Christ’s redemption, Wilkins turns to the ancients and considers Socrates and Plato who believed “that their Heaven and Elysian fields were in the Moone where the aire is most quiet and pure.” And to Plutarch, for whom the moon is one of the two celestial “places of happinesse” where the soul and the understanding reside after death:

the soule [Plutarch] thinkes is made of the Moone, and as our bodies doe so proceede from the dust of this earth, that they shall returne to it hereafter, so our soules were generated out of that Planet, and shall bee resolved into it againe, whereas the understanding shall ascend unto the Sunne, out of which it was made where it shall possesse an eternity of well being, and farre greater happinesse than that which is enjoyed in the Moone. (197)²⁴

These considerations lead to a necessarily speculative discussion about the location in actual space of heaven and hell.²⁵ There are several proposed possibilities: heaven is in the moon; heaven is on the earth’s highest mountain, which would have allowed it to survive the flood, so the argument goes; still, others countered that a mountaintop simply would not be large enough “since ’tis likely all men should have live there, if *Adam* had not fell” (206). Hell is somewhere between the earth and the moon; hell is in the centre of the earth; the place of hell “is not yet determined, but that hell is there where there is any tormented soule” (202). But, in the end, these considerations must remain speculative and unresolved. “I dare not my selfe affirme any thing about these Selenites, because I know not any ground whereon to build a probable opinion” (207).

But rather than this acknowledgement serving to mark Wilkins’s failure, the failure of the lunar narrative, or the failure of the new cosmology issued from Galileo’s telescope, Wilkins’s recognition of the limits of knowledge works instead to endorse and support precisely these innovations and these efforts. “I thinke that future ages will discover more; and our posterity, perhaps, may

²⁴ Wilkins is careful to give Plutarch his due in his organization of heaven and hell (and even purgatory), although it is clear—between the lines, as it were—that Wilkins understands the moon in Plutarch’s version to be Heaven:

Thus you see *Plutarch*s opinion concerning the inhabitants and neighbours of the Moone ... you see he makes that Planet an inferior kind of heaven, and though hee differ in many circumstances, yet doth hee describe it to be some such place, as wee suppose Paradise to be. (199)

²⁵ Wilkins also traces, in some careful detail, Plutarch’s notion of a kind of Purgatory, where souls not ready to ascend to the celestial bodies are “purged from that impurity which they did derive from the body” before they are granted access to the moon. See *Discovery*, p. 197.

invent some meanes for better acquaintance with these inhabitants." And this expectation, about the nature of future inquiry and the nature of knowledge, can be generalized: "'Tis the method of Providence not presently to shew us all, but to lead us a long from the knowledge of one thing to another" (207). Citing the historical example of islanders "in the first ages of the world" who lived without true and sure knowledge that they were not alone on the earth until the invention of ships and the mustering of the necessary resolve "to commit themselves unto the vaste Ocean," Wilkins ventures a prediction:

So, perhaps, there may be other meanes invented for a conveyance to the Moone, and though it may seeme a terrible and impossible thing ever to passe through the vaste spaces of the aire, yet no question there would bee some men who durst venture this as well as the other We have not now any *Drake* or *Columbus* to undertake this voyage, or any *Dadalus* to invent a conveyance through the aire. However, I doubt not but that time who is still the father of new truths, and hath revealed to us many things which our Ancestours were ignorant of, will also manifest to our posterity, that which we now desire, but cannot know. (208–9)

Wilkins argues that with history as our precedent and with a new kind of faith founded upon the practices of emergent science, it is virtually inevitable that we will, through time, come into a fullness of knowledge about the cosmological world, to be sure, but also about those ontological, and even eschatological, issues and questions that stand at the centre of our desire to know. And within and through his *Discovery*, Wilkins manages to reinvent a new form of the cosmic voyage and the lunar narrative in which the voyage to the moon is not the means toward some satirical objective (the repudiation of the Jesuits, for instance, or the mockery of travelers' accounts of marvels), but rather the voyage to the moon becomes the goal itself.

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Chapter 10

Defoe the Geographer: Redefining the Wonderful in *A Tour Thro' the whole Island of Great Britain*

Jesse Edwards

Defoe the Geographer

We know that Daniel Defoe was fascinated by geography and that he collected geographic writing avidly.¹ At a relatively early stage in his career Defoe traveled Britain extensively as an agent of the wily statesman Robert Harley, recording and seeking to influence local allegiances and opinions.² His reading and his personal travel experience inspired him with the confidence to offer geographic counsel to his monarch and to publish geographic texts.³ Organizing contributions from some of the leading geographers of the day, Defoe probably edited the lavish subscription volume *Atlas Maritimus & Commercialis* (1728).⁴ But his greatest undisputed geographical achievement is *A Tour Thro' the whole Island of Great Britain*, first published in three volumes between 1724 and 1726, featuring maps by the prolific German-born cartographer Herman Moll.⁵

¹ Paula R. Backscheider, *Daniel Defoe: His Life* (Baltimore and London: Johns Hopkins University Press, 1989), pp. 441–2; Ilse Vickers, *Defoe and the New Sciences*, *Cambridge Studies in Eighteenth-Century English Literature and Thought* 32 (Cambridge and New York: Cambridge University Press, 1996), p. 6.

² Backscheider, *Daniel Defoe*, p. 160.

³ *Ibid.*, p. 449.

⁴ Daniel Defoe, John Harris, and John Senex, et al., *Atlas Maritimus & Commercialis* (London: printed for James and John Knapton, William and John Innys in St. Paul's Church-yard; John Darby in Bartholomew-Close; Arthur Bettesworth, John Osborn and Thomas Longman in Pater-noster-Row; John Senex in Fleet-Street; Edward Symon in Cornhil; Andrew Johnston in Peter's Court in St. Martin's Lane; and the executors of William Taylor deceas'd, 1728). For a discussion of the publication of this atlas, see Backscheider, *Daniel Defoe*, pp. 471–3. We should note that there is no conclusive evidence linking Defoe to this text. P.N. Furbank and W.R. Owens conclude that whilst “there are facts which might seem to support” the attribution, Defoe’s role in the production of the *Atlas Maritimus* is an unresolved “problem.” See *A Critical Bibliography of Daniel Defoe* (London: Pickering and Chatto, 1998), pp. 276–9,

⁵ Daniel Defoe, *A Tour Thro' the whole Island of Great Britain* (1726), ed. John McVeagh, 3 vols, in W.R. Owens, P.N. Furbank, and John McVeagh (gen. eds), *Writings*

A Tour claims to be based on, and is structured around, a series of “Circuits or Journies” made by Defoe himself (1:45). A guide to the Britain of Defoe’s day, *A Tour* describes the “Principal Cities and Towns,” the “Produce and Improvement” of its regions, and the “Customs, Manners, Speech” of its inhabitants. A succession of “learned Writers” have described the antiquities of Britain; what *A Tour* adds to the sum of knowledge is an attention to its “Present State” and its recent “Encrease” and “Improvement” in culture, commerce, wealth, and population (1:47). This is a revisionist geography, which seeks to displace established antiquarian and poetic modes for celebrating and mythologizing the national landscape with a newly scientific appreciation of utility and productivity. In the relatively few instances in which *A Tour* has attracted the attention of literary scholars, it has been studied as an implicitly political text, despite its avowed neutrality—a whiggish hymn to trade, modernity, and progress. But readers have tended also to detect a note of ambivalence in *A Tour*, an anxiety about precisely those dynamic forces of change which Defoe appears to celebrate. Pat Rogers argues that the celebration of change is undercut by melancholy at destruction and decay.⁶ Betty Schellenberg suggests that *A Tour* is an attempt to impose formal order on a national subject that Defoe and his contemporaries were increasingly experiencing as fragmentary.⁷

If Defoe is ambivalent about the commercial dynamism he tries to map, his ambivalence can be explained in terms of his complex views on trade. Trade was a lifelong preoccupation for Defoe, a subject to which he returns to again and again and which infuses his writing in every genre. Accordingly, the contemporary politics of trade have become a conventional part of Defoe studies, and any extensive survey or collection of essays on Defoe’s work is likely to include an assessment of his economic ideas. In large part there is a consensus on the nature of these ideas. A recent essay by Srinivas Aravamudan represents well this consensus and concludes that Defoe espoused more or less the full range of positions available to the economic writer in the period and was often contradictory in his views: he both supported and opposed monopolies; he was both a skeptic and a proponent of monetary control; and he was a bitter enemy of stock-jobbing and luxury consumption at one moment, but a “proto-capitalist free trader” at another.⁸

on *Travel, Discovery and History*, 8 vols (London: Pickering & Chatto, 2001), cited parenthetically hereafter by volume and page numbers.

⁶ Pat Rogers, *The Text of Great Britain: Theme and Design in Defoe’s Tour* (Newark: University of Delaware Press; London and Cranbury, NJ: Associated University Presses, 1998), pp. 19–21.

⁷ Betty Schellenberg, “Imagining the Nation in Defoe’s *a Tour Thro’ the Whole Island of Great Britain*,” *English Literary History* 62/2 (Summer, 1995): p. 296.

⁸ Srinivas Aravamudan, “Defoe, Commerce, and Empire,” in John Richetti (ed.), *The Cambridge Companion to Daniel Defoe* (Cambridge and New York: Cambridge University Press, 2008), pp. 48 and 51.

As Max Novak puts it, in the classic study of Defoe's economic thought, Defoe glories in wearing the "masks" of different ideological positions.⁹ He is also, for various reasons of politics and self-interest, compelled to wear these different masks. My objective in this essay, and in a larger investigation of Defoe's geographies, is not to establish what Daniel Defoe "really" believed about trade since he held and expressed contradictory beliefs. I want to think about the ways in which he uses geography to work through ideas about the relationships between science and nature, between government and trade. What will preoccupy me here is Defoe's failure in *A Tour* to "compass in" or impose scientific order on his subject. I think this is, in large part, a failure about which he is relatively relaxed, and I want to describe the poetics and to try to explain the politics of this failure.

From Myth to Science: Rationalizing the Flows of Nature

In one respect, *A Tour Thro' the whole Island of Great Britain* constitutes, in Pat Rogers's words, "a prolonged effort at demystification."¹⁰ This is a geography that is infused somewhat from books, yes, but more importantly from critical, eyewitness examination of people and places. Edmund Gibson's 1695 edition of William Camden's *Britannia* was a key source for Defoe. He carried it with him on his journeys and borrowed heavily from it as he wrote, particularly where he needed to elaborate on the history of a place.¹¹ But, as Pat Rogers puts it, "*Britannia* had appeared to survey a static world, where the remnants of antiquity still formed the landmarks of the modern nation."¹² It also accommodated elements of the medieval and early modern celebration of Britain's natural beauties and preternatural "wonders." In place of this geography of static natural harmony and tradition, Defoe offers a new, Baconian appreciation of the chemistry, physics, and geography of nature and its potential for human use. In so doing he clears the ground for a rationalist mapping of a national system of trade.

One geographic revision in *A Tour* deals with the river Mole, which rises in West Sussex and flows into the Thames. Between Dorking and Leatherhead the permeable chalk beneath the river allows some of the water to disappear through "swallow holes," only to rise again as the river crosses impermeable London clay after Leatherhead.¹³ In the driest weather, the river may disappear completely as it crosses the North Downs. This seemingly miraculous phenomenon was a popular reference point in the poetry of the seventeenth and early eighteenth centuries. Pope refers in *Windsor Forest* to "sullen Mole, that hides his diving flood" and

⁹ Maximilian E. Novak, *Economics and the Fiction of Daniel Defoe* (New York: Russell & Russell, 1976), p. 1.

¹⁰ Rogers, *The Text of Great Britain*, p. 162.

¹¹ Ibid., p. 21, pp. 112–13.

¹² Ibid., p. 134.

¹³ F.H. Edmunds, "Swallow Holes and Springs in the Chalk of the Mole Valley," *The London Naturalist* 23 (1944): pp. 2–7.

in “Song XVII” of *Poly-Olbion* (1622), Michael Drayton imagines the Mole as a “wanton Nymph,” who, to evade her mother’s watchful gaze, “underneath the Earth, for three miles space doth creep: /... As longing to imbrace old *Tame* and *Isis* son” (ll. 61–4).¹⁴

Defoe, revolted equally by Drayton’s simple whimsies and by the gullibility of travelers willing to swallow such natural “wonders,” is having none of it. Aiming to “undeceive the world,” he confronts the most authoritative of prior geographic accounts, Camden’s *Britannia*, with the evidence of his own eyes (1:184). “To make the Wonder appear more conformable to the Relation,” notes Defoe,

the Map of the county of *Surrey*, plac’d in Mr *Camden*, makes a large Blank between the River as *swallowed up*, a little off of *Darking*, and its rising again as at *Leatherhead*, breaking the River off abruptly, as if pouring its Waters all at once into a great *Gulph* (1:184)

The reality, suggests Defoe, though no less wonderful, can be reduced to rational explanation:

... the Current of the River being much obstructed by the interposition of those Hills, call’d *Box Hill* ... it forces the Waters as it were to find their way thro’ as well as they can; and in order to do this, beginning, I say, where the River comes close to the Foot of the Precipice of *Box-Hill*, called the *Stomacher*, the Waters sink insensibly away, and in some Places are to be seen (and I have seen them) little *Channels* which go out on the sides of the River, where the Water in a Stream not so big as would fill a Pipe of a quarter of an Inch Diameter, trills away out of the River, and sinks insensibly into the Ground.

In this manner it goes away, lessening the Stream for above a Mile, near two, and these they call the *Swallows*. (1:185)

Defoe’s “little channels” seem to represent the reduction of natural contingency to its most acceptable, minimum form. Defoe simply seems incapable of accepting that his geographic subject might disappear, leave a gap in the map, or retain any foggy residue of allegory or wonder.

His most sustained attack on the mythic map of Britain comes in his encounter with the Derbyshire Peak district. Defoe explores the Peak, walking consciously in the footsteps of two former travelers and writers: the poet, translator, and fly fisherman Charles Cotton and the philosopher Thomas Hobbes. Cotton had published his *Wonders of the Peake* in 1681, which in turn traded on the popularity of Hobbes’s *De mirabilibus Pecci*, published in Latin in 1636 and published in

¹⁴ Alexander Pope, *Windsor Forest*, l. 347 in Herbert John Davis (ed.), *The Poetical Works (of) Pope*, 1st edn reprt with a new intro. Pat Rogers (Oxford: Oxford University Press, 1978), p. 47; Michael Drayton, “Song XVII,” in *Poly-Olbion. Poly-Olbion*, in J. William Hebel (ed.), *The works of Michael Drayton*, Tercentenary edn (Oxford: Basil Blackwell for the Shakespeare Head Press, 1933), pp. 330–31.

translation in 1678.¹⁵ Hobbes, Cotton, and Defoe all visited, described, and evaluated seven sites, from the man-made wonder of Chatsworth House to six wonders of nature, including hills, caves, and wells. Defoe advertises his topography of the Peak as a debunking of past nonsense:

Now to have so great a man as Mr. *Hobbes*; and after him Mr. *Cotton*, celebrate the Trifles here, the first in a fine *Latin* poem, the last in *English* Verse, as if they were the most exalted Wonders of the World; I cannot but, after wondering at their making Wonders of them, desire you, my Friend, to travel with me through this houling Wilderness in your Imagination, and you shall soon find all that is wonderful about it. (3:33)

The reader who in his imagination follows Defoe to the wonders of the Peak is encouraged to poke and prod at them until their trifling secrets have been exposed. Part of the wonder of “Poole’s Cavern,” a limestone cave south of Buxton, is the reflection from the roof of the candles guides and visitors carry as they tour the cave, an effect caused by the moisture which gathers there, before dripping down and forming stalactites. Defoe is unusually lyrical on the beauty of the glittering roof, which he observes is like “ten thousand Rainbows in miniature,” but he is impatient with the willingness of most visitors to rest amazed with the spectacle (3:40). “Were any part of the Roof or Arch of this Vault to be seen by a clear Light,” he suggests, “there would be no more Beauty on it than on the Back of a Chimney.” The glories of the cave-roof might be extinguished, he suggests, by a pole with a cloth on the end. Defoe has still less patience with “Weeden Well” at Tideswell, “a Spring of Water which ebbs and flows, as they will have it, as the Sea does” (3:45). Defoe finds Weeden Well the poorest of the wonderless Peak wonders and gives it a scant two paragraphs. He explains the relationship between trapped air and gradually accumulating water that causes the periodic emptying of the “well” basin: “a poor thing indeed to make a Wonder of.” He suggests that “if any Person were to dig into the Place, and give vent to the Air, which fills the contracted Space within, they would soon see *Tideswell* turned into an ordinary running Stream” (3:46).

Pat Rogers identifies Defoe’s exposure of the “wonderless wonders” as a function of his self-fashioning as a scientific topographer, redefining his subject “with Baconian rigor and true Royal Society particularity” and aiming to give a new sense of “what truly invites rational admiration.”¹⁶ To appreciate how

¹⁵ Charles Cotton, *The Wonders of the Peake* (London: Printed for Joanna Brome, at the Gun at the West-end of St. Pauls, 1681); Thomas Hobbes and a Person of Quality, *De Mirabilibus Pecci: Being the Wonders of the Peak in Darby-Shire, Commonly called the Devil’s Arse of Peak, in English and Latine* (London: Printed for William Crook at the Green Dragon without Temple-Bar, 1678).

¹⁶ Rogers, *The Text of Great Britain*, pp. 165 and 164. See also P.N. Hartle, “Defoe and *The wonders of the Peake*: the place of Cotton’s poem in *A tour thro’ the whole island of Great Britain*,” *English Studies: A Journal of English Language and Literature* 67/5 (1986): pp. 420–31.

typical his reaction against the wonderful is, one must only remember that this is a period which produced Hobbes's and Cotton's poems on the Peak, a period "unprecedented and unrepeated" in regarding the emotion of wonder as a legitimate "goad" to scientific inquiry, treating extreme and unusual natural phenomena as "prime objects of investigation."¹⁷ By Defoe's day, the wonder-seeking *virtuoso*, neglecting his social responsibilities in the pursuit of arcane antiquarian and natural knowledge, had become a common butt of literary satire.¹⁸ Scientists were more interested in revealing universal laws than probing individual curiosities and "neither God nor nature could any longer be admired for mere intricacy of workmanship without uniformity or utility."¹⁹

In tune with the spirit of his age, what Defoe demands in the place of myth and slack-jawed gawping at the unknown is an appreciation of man's achievements in exploiting nature's useful regularities, a characteristically enlightened form of wonder. Refusing those pastoral geographies that saw rivers sublimed as local gods, Defoe plots the literal course of rivers whose true miraculous nature lies in the prodigious intercourse they forge between people and places. On the Thames, Defoe writes:

I shall sing you no Songs here of the River in the first Person of a Water Nymph, a Goddess, (and I know not what) according to the Humour of the ancient Poets. I shall talk nothing of the Marriage of old *Isis*, the Male River, with the beautiful *Thame*, the Female River, a Whimsy as simple as the Subject was empty, but I shall speak of the River as Occasion presents, as it really is *made glorious*

... I shall speak of it, as it is the Chanel for conveying an infinite Quantity of Provisions from remote Counties to *London*, and enriching all the Counties again that lye near it, by the return of Wealth and Trade from the City; and in describing these Things I expect both to inform and divert my Readers, and speak, in a more Masculine Manner (1:208–9)

Similarly, having burst the bubble of the "wonderless wonders" of the Peak with his imaginary pokes and digs, Defoe discovers a genuine wonder in the improvements of those Whig dynasts, the Devonsires, whose ornamental "Pipes, ... *Cascades*, Waterworks, Ponds, and *Canals*" prove that even the most "comfortless" and "barren" landscape can be disciplined—made ordinary, like the droplet-spangled roof of Poole's Cave or Tideswell spring in Defoe's reductive explanations (3:48).

Further proof of the improving genius of mankind is found in the Trent, with which Defoe begins the letter in *A Tour* which describes the Peak. This river is,

¹⁷ Lorraine Daston and Katharine Park, *Wonders and the Order of Nature, 1150–1750* (New York: Zone, 1998), p. 13.

¹⁸ See Claire Preston, "The jocund cabinet and the melancholy museum in seventeenth-century English literature," in Robert John Weston Evans and Alexander Marr (eds), *Curiosity and Wonder from the Renaissance to the Enlightenment* (Aldershot, UK; Burlington, VT: Ashgate, 2006), 87–106.

¹⁹ Daston and Park, *Wonders and the Order of Nature*, p. 355.

for Defoe, a prime artery of national definition and consolidation. Running a large part of the breadth of the country and cutting it roughly down the middle, the Trent draws upon many “Rivulets” at its source in the highlands of Staffordshire, and “comes down from the Hills with a violent Current into the flat Country” (3:13). Once descended, its violence is abated, and it “carries a deeper Channel, and a stiller Current.” Navigable “by Ships of good Burthen” for 40 miles between Gainsborough and the Humber, and forming part of a network navigable by barges between Gainsborough and Nottingham, the Trent bears around “four thousand Ton of *Cheshire Cheese*” every year to Gainsborough and Hull, and many “heavy and bulky Goods,” such as “*Iron, Block-Tin, Salt*” are borne back in return (3:15, 18). This, for Defoe, is genuinely wonderful.

Between Political Arithmetic and the Economic Sublime

Defoe’s whole-hearted commitment to utility marks him as the intellectual heir of that generation of scientific visionaries who believed, with Francis Bacon, that man could recuperate the fall to some extent through the diligent investigation and manipulation of nature. The seventeenth-century histories of trades, which were advocated and attempted by intellectual reformers such as Samuel Hartlib and Robert Boyle, were attempts at an encyclopedic cataloguing of all the means by which nature might be wrought to the benefit of man. They aspired, often explicitly, to a cartographic transparency and comprehensiveness of perspective, and Defoe’s geographic writing responds to this drive to freeze-frame the nation for the particular and general benefit of its inhabitants.²⁰ And yet it stops short of any clear and comprehensive vision. In the midst of his rational, realist measurement and mapping, something else takes hold of Defoe, a kind of ecstasy at the inevitable failure of this task and at the immense scale and irrepressible dynamism of trade. In these moments Defoe falls a happy victim to the pleasures of what Max Novak has called the “economic sublime.”²¹

As he passes through each place on his circuits, Defoe will sometimes take an arithmetic snapshot of the business done there. But the numbers thereby generated are not intended as precise measurements to be relied upon or used; they are simply intended to impress. Suffolk, for instance, is famous for the turkeys it sends to London. Lest his reader think this trade “inconsiderable,” Defoe tells us that someone living near “*Stratford-Bridge* on the River *Stour* … on the Road from *Ipswich* to *London*” has told him that they’ve counted 300 droves of turkeys passing that way in a season (1:102–3). Taking there to be an average of 500 turkeys in a drove, Defoe calculates a total of 150,000 turkeys passing over Stratford bridge. He then tells us that this is “one of the least Passages” by which turkeys travel to London, moving his reader’s imagination from a precise

²⁰ Vickers, *Defoe and the New Sciences*, pp. 111–12.

²¹ Maximilian E. Novak, *Daniel Defoe: Master of Fictions* (Oxford: Oxford University Press, 2001), p. 632.

magnitude to a prodigious immensity. Much the same maneuver characterizes his description of the corn market at Farnham, the greatest in England—London excepted. Here “a Gentleman” has told Defoe that

he once counted on a Market-Day Eleven Hundred Teams of Horse, all drawing Waggons, or Carts, loaden with Wheat at this Market; every Team of which is supposed to bring. Forty Bushel of Wheat to Market; which is in the whole, Four and Forty Thousand Bushel. (1:178)

Defoe refuses to “affirm” this estimate or even to “say whether it be a probable Opinion or not”; he simply wants us to understand the vastness of the Farnham corn trade (1:178–9). At Wey-Hill sheep-fair in Somerset, the greatest in the country, a grazier tells Defoe “boldly” that 500,000 sheep were sold in a single fair (2:41). Once again, Defoe himself will make “no Estimate,” but rather “’tis sufficient to note, that there are a prodigious Quantity of Sheep sold here.”

In his circuits around the country for *A Tour*, Defoe uncovers a vast, autonomous, half-secret economy of prodigious scale. This is strikingly apparent in his extended accounts of commercial fairs. As the reader follows Defoe’s circuit though East Anglia and towards the familiar antiquities of Cambridge, he is coaxed into a “Digression” through less formally charted territory (1:121). Stourbridge Fair, Defoe tells us, is held in August and September on a half-mile square of cornfield between the river Cam and the Cambridge to Newmarket Road. It is, says Defoe, the greatest trading fair in the world (1:121–2). In the tents and booths that line the temporary streets of the fair “all Trades that can be named in *London*” set up shop, “with Coffee-Houses, Taverns, Brandy-Shops, and Eating-houses, innumerable” (1:122). Defoe delineates for us the areas of the fair occupied, like London streets, by the various trades and presents a glimpse into the “prodigious,” even “infinite” scale of the business carried on. The booths or tents devoted to the woolen manufacture, for instance,

are of a vast Extent, have different Apartments, and the Quantities of Goods they bring are so Great, that the Insides of them look like another *Blackwell-Hall*, being as vast Ware-houses pil’d up with Goods to the Top. In this *Duddery*, as I have been inform’d, there have been sold One Hundred Thousand Pounds worth of woollen Manufactures in less than a Week’s time (1:122–3)

If the sheer scale of the business done in such places as Stourbridge Fair is remarkable, so too is its efficiency and orderliness. Stourbridge Fair seems in Defoe’s depiction a self-regulating system, a makeshift city and community in miniature, erected and dismantled almost miraculously and operating according to principles of morality and order which seem *sui generis* rather than imposed. Here wholesale men from London “transact their Business wholly in their Pocket-Books” and a “Court of Justice” is held in a “Shed” for “deciding Controversies in matters Deriving from the Business of the Fair” (1:123, 126). “In a Word,” concludes Defoe, “the Fair is like a well Fortify’d City, and there is the least

Disorder and Confusion (*I believe*) that can be seen any where, with so great a Concourse of People" (1:126).

The Leeds cloth market is just as remarkable in this regard. Here "Ten or Twenty thousand Pounds value in Cloth, and sometimes much more, [are] bought and sold in little more than an Hour, and the Laws of the Market the most strictly observed as ever I saw done in any Market in *England*" (3:75). Early in the morning trestles are set up on both sides of the high street with boards across them making one continuous counter, and the clothiers from the surrounding manufacturing villages begin to assemble in the inns, each generally carrying one piece of cloth each. At seven the market bell rings, and the clothiers are all assembled at their trestles in less than a quarter of an hour. "Merchants and Factors, and Buyers of all Sorts" pass up and down the street, some with "foreign Letters of Orders" in their hands, and when they find a cloth that suits their purpose, business is done in a few quick whispers (3:74). Through this regular, orderly mechanism, "the Clothiers are constantly supplied with Money, their Workmen are duly paid, and a prodigious Sum circulates thro' the County every Week" (3:75).

The greatest prodigy of all in *A Tour*, and the greatest challenge to Defoe's measurements and calculations, is naturally London. London poses what Defoe describes, rather remarkably, as a "Crisis, singular to those who write in this Age, and very much to our Advantage in Writing" (2:74). Prodigious growth saw the "Body" of London become "infinitely great" in only a few years, which Defoe viewed as a crisis because it frustrated any attempt at a comprehensive or final description. While this growth may present an advantage for modern writers, its dynamism makes new description endlessly necessary, just as London's hunger for the produce of the nation stokes the furnaces of trade. To describe the city of London only, as defined by its walls and liberties, would be easy enough, but to bring that "vast Mass," that "Prodigy of Buildings" which constitutes London "in the Modern Acceptation" within "the narrow Compass of a Letter" is for Defoe an "infinitely difficult" task (2:65). Defoe's London is dynamic, ever-changing, and, unlike Rome, is built not on any regular plan, but "as the Convenience of the People directs, whether for Trade, or otherwise; and this has spread the Face of it in a most straggling, confus'd Manner" (2:65).

Defoe's first response to this "mighty, I cannot say uniform, Body" is to describe a "LINE of Measurement, drawn about all the continued Buildings of the City of London, and Parts adjacent, including Westminster and Southwark," aiming at as much accuracy as can be achieved "without drawing a Plan, or Map" (2:66–7). The course of the line is described in segments as it passes around and through parks, brewing houses and ducking ponds, and the length of each segment is given in the surveyor's measures of miles, furlongs, and rods. Having compassed the city, Defoe confronts its contents. He has no concern here with antiquities and monuments, referring the reader interested in these things to "Stow and his Continuators" (2:73). Instead he takes a snapshot of its population. Using the recently established principle of calculating from births and deaths, and taking into account London's "prodigious Increase," the population within

the “Circumference” Defoe has described must be at least 1,500,000, he thinks, and still “prodigiously increasing” (2:72). Prodigiously increasing, too, are the buildings of London. Defoe spends many pages praising those buildings put up since the fire, such as St Paul’s Cathedral and the Royal Exchange, and admiring the handsome squares and private mansions springing up west of the city.

If the prodigious dynamism of London looks chaotic, it is not; the laws of commerce, supervised by the city, regulate it. Though its formal expansion may be autonomous and irregular, the government of this “vast collected Body of People” is “the most regular and well-ordered” of any city of this size (2:72). The city center of London’s “Commerce and Wealth” and the Court center of its “Gallantry and Splendor” enjoy a reasonably harmonious relationship (2:84). “Between the Court and city,” writes Defoe, “there is a constant Communication of Business to that degree, that nothing in the World can come up to it” (2:85). But the focal point of London, and indeed England’s energy, power, and order resides in the city. Here is the Custom House,

the *Excise* Office, the *Navy* Office, the *Bank*, and almost all the Offices where those vast Funds are fixed, in which so great a Part of the Nation are concerned, and on the Security of which so many millions are advanced.

Here are the *South Sea* Company, the *East India* Company, the *Bank*, the *African* Company, &c. whose stocks support that prodigious Paper Commerce, called *Stock-Jobbing*; a Trade which once bewitched the Nation almost to its Ruin, and which, tho’ reduced very much, yet is still a Negotiation, which is so vast in its Extent, that almost all the Men of Substance in *England* are more or less concerned in it (2:85)

The magnetic power of the City has drawn “the Nobility and Gentry from all parts of *England* to *London*” to be on hand to hear the news which influences stock prices and to buy and sell accordingly. Only peace, Defoe notes, and the reduction of that public debt, which has grounded so much speculation, may send some of them home and reduce the value of some of those fine West End squares and mansions. Meanwhile, the memory of the ruinous South Sea bubble notwithstanding, the city keeps good order. At the Bank, in Grocer’s Hall, “Business is dispatch’d with such Exactness, and such Expedition and so much of it too, that it really is prodigious,” and the Post Office has brought the penny post “into so exquisite a Management, that nothing can be more exact” (2:88, 90). On the wharves of London a “vast Trade” is carried on through the agency of poor working men, “Porters, Watchmen, Wharfingers,” who shift “great Quantities of valuable Goods” without “any Loss or Embezzlement” (2:91).

But it is in describing the markets of London that Defoe’s prose reaches its highest pitch of excitement. Here, as in his descriptions of Leeds and Stourbridge, Defoe maps out the geography of commerce, but balks at measurement, happy to squint blindly at its sublimity. Beginning with Smithfield cattle market, “the greatest in the World,” he says simply that “no Description can be given of it, no Calculation of the Numbers of Creatures sold there, can be made. This market is

every *Monday and Friday*" (2:91). Defoe's London, and indeed his descriptions of markets around the kingdom, seems to invoke the Holland of the seventeenth-century imagination. These are places where spatial limitation seems only to have intensified the natural flow of trade, and where, the example of the South Sea Bubble notwithstanding, a commercial life of prodigious magnitude and intensity seems to generate its own form of order.

Governing Free Trade: The Politics of Immensity

As his vast, dynamic subject escapes him, Defoe rewrites the wonderful into his geography, that which should excite yet must elude the gaze of scientists and governments alike. "As long as England is a trading, improving Nation," Defoe warns his reader, in the preface to the second volume of *A tour*, "no perfect Description either of the Place, the People, or the Conditions and State of Things can be given" (2:4). This conscious imprecision is characteristically read in terms of Defoe's ambivalent response to commercial forces whose dynamism he both celebrates and fears. Here I want to situate it as a quite deliberate intervention in contemporary debates on the relationships between science and nature, between government and trade.

In one respect, perhaps surprisingly, Defoe's imprecision is a symptom of that same contemporary shift of scientific mood away from the particulars and towards the general laws of nature that lead him to discredit traditional topographic "wonders." Peter Buck has described the late seventeenth-century emergence and early development of that science of political arithmetic which first sought to use statistical analysis to inform government.²² Early statisticians such as William Petty, like Hobbes and indeed Calvin, saw the state as necessarily oppressive in its bid to discipline the lives of fallen men, and they saw mathematics as a tool for containing the disorder inherent to nature and human society.²³ As the science of political arithmetic developed, however, it responded to the "triumph of Newtonianism," itself "deeply rooted in the reestablishment of political stability in England after the Glorious Revolution," and was used increasingly "to validate a presumption of order and stability in both society and the physical world."²⁴

Defoe is happy to concede that his own investigative practice for *A Tour* has had modest aims. In journeying "*in a private Capacity*," gathering information "*from due Enquiry and from Conversation*" does not constitute a "*Survey*," he has not been able to measure distances nor to make exact determinations of sites or dimensions (2:3). Instead, *A Tour* is more a Boolean "*Essay*" in the plain style of "*Familiar Letters*" than the kind of survey for which Petty became famous. If Defoe ridicules mythologists and antiquarians in *A Tour*, elsewhere he is just

²² Peter Buck, "Seventeenth-Century Political Arithmetic: Civil Strife and Vital Statistics," *Isis* 68/1 (March 1977): pp. 67–84.

²³ *Ibid.*, p. 67.

²⁴ *Ibid.*, p. 83.

as scornful of hubristic claims to accurate and systematic measurement, directly naming “that great Pretender to politick Arithmetick, Sir *William Petty*, whose Calculations of the Numbers of the Houses, and Families, and Inhabitants in *London*, and other populous Cities, were ... prov’d absurd.”²⁵ In disassociating his own method from Petty’s, Defoe commits himself to a relatively liberal and characteristically enlightened attitude to the relationship between man and nature, between government and trade. He can afford the Boylean scientist’s modest acknowledgement of the limits of his knowledge since this knowledge is not offered as a bulwark against social chaos.

Notwithstanding the conservative “masks” he wore on particular trade issues, the celebration of trade as natural wonder is a persistent thread in Defoe’s economic and geographic writing, identifying him with the more liberal currents in contemporary economic thought. As a writer on trade, and a would-be counselor to his country and government, Defoe contributed to that well-established tradition from which the modern science of political economy developed. Across seventeenth-century Europe, figures dubbed “consultant administrators” by the economist Joseph Schumpeter had emerged to debate the merits of trade as a means to national power and prosperity and to offer advice on the best way for governments to harvest national benefit from commerce.²⁶ By the 1690s, liberal economic thinkers such as Dalby Thomas, Charles D’avenant, and Nicholas Barbon were describing a world in which all nations were bound together by the mutual benefits of trade, in a reciprocity intended by God and encouraged through the differences in local climates and resources through which one nation was able to supply another’s needs.²⁷ These writers regarded the autonomous flows of trade as impelled by self-interested human behaviors susceptible to rational analysis, and in their studies of the psychology of materialist desire, they went some way to cleansing it of past opprobrium. The 1690s liberals saw no need for government to restrict imports, interest rates, or the consumption of luxuries. Trade would find its own channel; the market would respond to each need and desire as it arose; and the decisions made by individuals about their own property and interests would be more rational and orderly on the whole than any moral or social order enforced by government.

In these ideas, the 1690s liberals went a remarkable way toward anticipating the model of economic liberalism which Adam Smith would construct in *The Wealth of Nations*, with its notion of *laissez-faire* government standing clear of a harmonious, self-balancing system of private interests.²⁸ And yet the actual course

²⁵ Daniel Defoe, *A Plan of the English Commerce*, ed. John McVeagh, in W.R. Owens and P.N. Furbank (gen. eds), *Political and Economic Writings of Daniel Defoe*, 8 vols (London: Pickering & Chatto, 2000), vol. 7, p. 214.

²⁶ Lars Magnusson, ed., *Mercantilist Theory and Practice: The History of British Mercantilism*, 4 vols (London: Pickering & Chatto, 2008), vol. 1, p. xi.

²⁷ Joyce Oldham Appleby, *Economic Thought and Ideology in Seventeenth-Century England* (Princeton: Princeton University Press, 1978), pp. 118–21.

²⁸ *Ibid.*, p. 255.

of economic policy and dominant discourse over the next few decades rendered their ideas, in Joyce Appleby's words, an "ideological fragment."²⁹ The liberal writers were, as characterized by Appleby, "merchants, bank promoters, stock jobbers, and projectors."³⁰ They were also, predominantly, Tories.³¹ Ultimately, the Whig ascendancy of the 1690s listened to and acted upon contrary, more conservative economic arguments advanced by the champions of factions who had less to gain and more to lose from free trade—the manufacturers and the landlords. In the last decades of the seventeenth century, writers such as John Pollexfen and John Cary invoked the plausible fear that whilst free trade, and particularly the import of such foreign textiles as Indian calico, might enrich merchants and tradespeople, it left the English poor vulnerable to unstable patterns of wage, price, and employment, and thereby posed a serious threat to social order, as well as undermining land values dependent on secure relationships between landlord and tenant.

In the 1720s, when Defoe produced his most famous geographies and treatises on trade, the protectionist policies of Walpole were reinforcing the imperial grip of British trade, raising the prices of foreign manufactured goods and promoting the export of British manufactures.³² Defoe's economic ideas, and indeed his vision of national and global geography, are infused with this spirit of jealous nationalism. And yet they bear strong traces, too, as his commentators have often noted, of the globalist optimism of the Tory free traders. In particular, they express a confidence that trade is an expression of the natural order and that the human desire to improve upon nature's potential can be trusted to reproduce this natural order in social form. Defoe's commitment to an idea of orderly immensity is a product of this confidence, which he shared with Tory free traders like Charles D'avenant, despite disagreements over specific government policies on foreign trade.

We can appreciate the common ground Defoe shared with the Tory free traders by looking at a print debate with which Defoe would certainly have been familiar. In 1697 D'avenant published *An Essay on the East India Trade*, a pamphlet designed to ward off legislation restricting the importation of East Indian calicos.³³ He was promptly answered by John Pollexfen in *England and East-India Inconsistent in Their Manufactures* (1697), and D'avenant responded to Pollexfen's critique in the following year with *Discourses on the Publick Revenues*.³⁴

²⁹ Ibid., p. 278.

³⁰ Ibid., p. 262.

³¹ Ibid., p. 267.

³² Backscheider, *Daniel Defoe*, p. 531.

³³ Charles D'avenant, *An Essay on the East India Trade*, in *The Political and Commercial Works of that celebrated Writer Charles D'avenant*, collected and revised by Sir Charles Whitworth, 4 vols (London: Printed for R. Horsfield, 1771), vol. 1, pp. 83–123.

³⁴ John Pollexfen, *England and East-India Inconsistent in Their Manufactures. Being an Answer to a Treatise Intituled, An Essay on the East India Trade* (London: [s.n.], 1697); Charles D'avenant, *Discourses on the Publick Revenues, and on the Trade of England* (1698) in *The Political and Commercial Works*, vol. I, pp. 126–459.

Alongside political arithmetic calculations, D'avenant uses a range of rhetorical images to support his notion of an autonomous, self-regulating system of commercial causes and effects that government meddling will upset. Most simply, trade is nature, as demonstrated by the providential geography which has sorted the world into different soils and climates, bringing the peoples of the world into contact with one another to exchange the different products they can produce. "Wisdom," D'avenant observes, "is most commonly in the wrong, when it pretends to direct nature" (104). Or, trade, D'avenant contends, is that natural element water: "Trade is in its nature free, finds its own channel, and best directeth its own course" (98). Pollexfen's answer to D'avenant confronts his argument point by point, page by page, often quoting salient passages at length. As well as contesting the figures that D'avenant deploys to support his argument for government leaving well enough alone, Pollexfen finds a contradiction between D'avenant's posture as political-arithmetic counselor and his rhetoric of complex and autonomous commercial networks. If trade finds its own channel and if it is really so impossible to trace its "Turnings, Windings, Circulations" or its "Veins, Arteries, Fibres," why should our legislators study it at all (56, 45)?

In his counterblast to Pollexfen, D'avenant confronts his assessment of the state, the origins, and the nature of national wealth, calling upon the same combination of precise political arithmetic and mystifying network imagery as in his earlier pamphlet. He answers Pollexfen's assertion that a self-regulating system does not need measuring with a distinction between causes and effects, proposing political arithmetic as a tool with which to measure prosperity, rather than to monitor and regulate the actual mechanisms of trade. The wealth of a people is a "great matter," he concedes, but it is "finite," and may be "compassed, and embraced by human industry and understanding" (373). This he demonstrates through political arithmetic, proving that England has prospered in an era of growing foreign trade; that land prices are higher and interest is lower; that there is more shipping and more coin in circulation; that the population has increased; and that the common sort are better clothed and fed (359–70 *passim*).

These are the effects, but they are secured by interconnecting causes so complex, that regulation of a part can only hurt the whole. To express this complexity, D'avenant deploys an arsenal of network imagery. Trade is like nature, and "the workings of trade are as hidden, and unaccountable, as the operations of nature" (388). Trade is like water, and measures to "limit or direct its course and channel, prove generally pernicious to it" (387). Trade is like a tree, where "[o]ne branch may seem prejudicial, but to lop it off may kill another, which, by secret fibres, has relation to it" (387). Trade is like an impenetrably complex machine because "[i]t is hard to trace all the circuits of trade, to find its hidden recesses, to discover its original springs and motions" (388). Trade, in other words, is a wonder or prodigy rather similar to those rivers which disappear underground to elude and fascinate the curious investigator.

D'avenant articulated his vision of free trade in an unsuccessful bid to protect the activities of the East India Company, a trading monopoly with which he was directly involved. Where Defoe wrote to defend his own interests or to make a case for allies in government or trade, he was very capable of using protectionist rhetoric to make cases for systematic monitoring and management. He published one such treatise in 1720, arguing that the "immense" East India trade could not be left "private and conceal'd," its flows allowed to pass to and fro without "Limitations."³⁵ Such arguments presume, in Hobbesian style, that nature cannot be left to its own devices. They depend on visions of the nation as neglected, porous, and wasting. Defoe's vision of Britain in *A Tour* is clearly of a different nature.

Like D'avenant, Defoe measures trade here only to prove its thriving state. That trade is thriving does not tell us anything definitive about the politics of commercial liberty or restriction with which the neutral geographic discourse of *A Tour* refuses pointedly to engage. Pat Rogers suggests that *A Tour* responded to a desire for a "national stocktaking" in the wake of the South Sea Bubble and that it is an attempt to celebrate and rebuild confidence in the vigor of Britain as a trading nation.³⁶ A celebration it certainly is, though I think *A Tour* responds to a range of gaps in England's commercial self-confidence, from anxieties over East India imports to the 1713 Treaty of Utrecht.

Like D'avenant, Defoe goes out of his way in his economic writing to prove that there has been no "decay" of trade in recent years, and his celebration of the current state of British trade in *A Tour* pursues the same agenda.³⁷ This agenda can be read variously in relation to contemporary politics as an argument for or against free trade. On the one hand if trade thrives, it thrives despite the restrictions of jealous competitors responding tit for tat to the protectionism of Britain's Navigation Acts, thereby proving, as Pollexfen argued, that governments can impose trade controls without hurting trade overall. "*Our Manufacture*," reflects Defoe in *A Plan of the English Commerce*, is

like a flowing Tide, if 'tis bank't out in one Place, it spreads by other Channels at the same Time into so many different Parts of the World, and finds every Day so many new Outlets, that the Obstruction is not felt (38)

On the other hand, if trade thrives, it thrives despite the relaxation of controls in 1713 over Britain's trade with France, demonstrating that British goods can compete on a more open market and that despite the fears of manufacturers, Britain can beat France in a fair commercial fight.

³⁵ Daniel Defoe, *Trade to India Critically and Calmly consider'd*, in John McVeagh (ed.), *Political and Economic Writings of Daniel Defoe*, vol. 7, respectively pp. 94, 92, and 87.

³⁶ Rogers, *The Text of Great Britain*, p. 73.

³⁷ Part II of *A Plan of the English Commerce* debates and dispenses with the notion of a decay of trade.

³⁸ Defoe, *A Plan of the English Commerce*, p. 119.

Indeed Defoe prefacing his celebration of English trade in *A Tour* with the assurance that Britain will go on improving until it “*exceeds the finest Country in Europe, as that Country now fancies they exceed her*” (1:50). But if Defoe’s celebration of commercial vigor is politically neutral in relation to those specific policies which political allegiances and personal interests bound him to, the spirit in which he attempts and willingly fails to describe it marks him as a liberal. A prodigy is not something that any government can manage, or should try to manage. It is, rather, a wonder of nature.

PART 4

The Curiosity of Travel

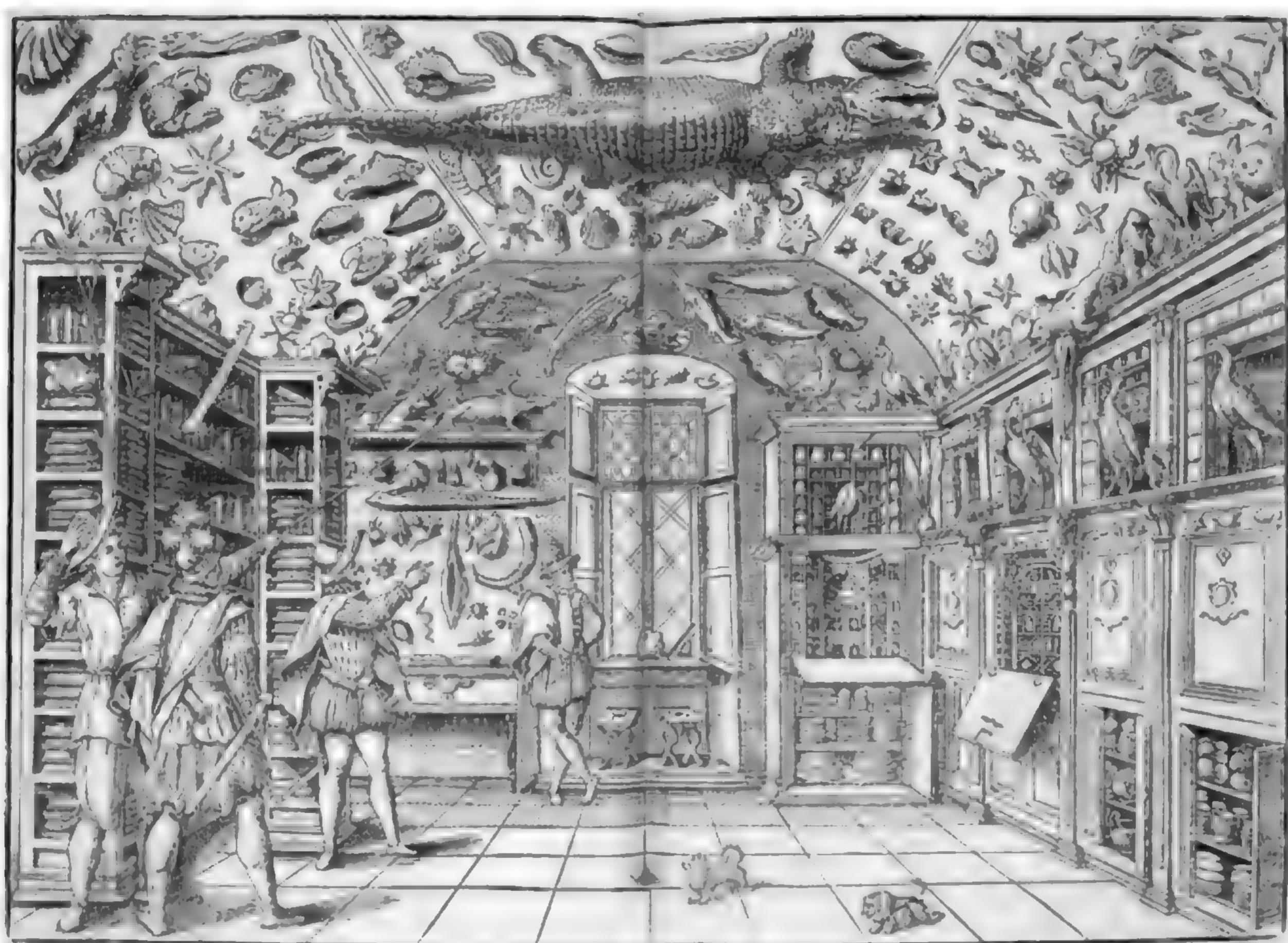


Fig. Pt.4 From *Dell'Historia Naturali* di Ferrante Imperato Libri XXVIII (1599). Reproduced by kind permission of the Syndics of Cambridge University Library. T*.1.32(c).

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Chapter 11

Spectating Science in the Early Modern Collection

Barbara M. Benedict

In early eighteenth-century Chelsea, a fashionable suburb in West London, sat a site of far-flung fame: a coffee-house that also contained on its upper floor the popular museum or “cabinet of curiosities” run by James Salter. In the catalog to the collection, Salter declares that he is exhibiting, among many other natural and cultural items, Pontius Pilate’s Chambermaid’s Sister’s Hat.¹ What is the significance of this object and this collection? This essay argues that, as European travel burgeoned, collecting became a national passion for the early-modern British, and encountering collections of both natural and cultural objects became a means for spectators to experience “science,” and hence to imitate and to mock the acts of knowledge of the early collector or virtuoso scientist. Seeing these “collectibles,” ranging from the revered to the ridiculous, in the early museum helped make science part of modern identity, as seeing became organized and documented in the literatures of travel and collecting and put on display in museums.

The museum holds particular cultural importance during the early modern period owing to the conjunction of three important cultural changes. The first is the advent of empiricism, not merely as a philosophy, but as a *practice*, especially of travel; the second is the explosion of consumer objects and spectacular events in Britain. Both of these stamped objects with a new authority and glamour. The third is the rise of nationalism, which made collecting a patriotic enterprise. While objects and collecting have evoked ambivalence from very early in the early modern period, these three cultural developments only intensified the ambiguity, enveloping the significance, meaning, and value of collections of things.² Paula Findlen has recently argued that unusual, even fraudulent, objects were “fully integrated” into the classic curiosity cabinet; however, the persistent early modern satire and caricature directed at curiosity cabinets suggest instead that the inclusion of objects, especially objects that breached conventional classifications, endangered the authority

¹ Steele claims that this entry is noted as item number 108 in the 39th edition of Salter’s catalogue. See *The Tatler*, No. 34, dated 1709.

² Neil Kenny locates an “object-oriented semantic thread” in the discourse of curiosity in “The Metaphorical Collecting of Curiosities in the Early Modern France and Germany,” in R.J.W. Evans and Alexander Marr (eds), *Curiosity and Wonder from the Renaissance to the Enlightenment* (Burlington, VT: Ashgate, 2006), pp. 44–5.

of the enterprise.³ Indeed, Claire Preston notes that mockery of “cataloguing, encyclopaedism, experimental philosophy and souvenir- or trophy-hunting” clashed with conventionally text-centered humanist culture, and so “made the antiquary’s and the experimentalist’s interest in things, rather than in books or manuscripts, difficult to assimilate into the prevailing model of learning.”⁴ This difficulty, however, also made collecting and observing collections a prime mode for the dramatization of an emerging identity, one symbiotically national and individual.⁵

Coryat, the Tombe-stone Traveler

In the three-volume narrative of his travels, *Coryat’s Crudities* (1611), Oxford-educated Thomas Coryat (1577–1617) provides an instructive introduction into the way early collecting dramatized identity. On his first journey, Coryat sailed on 14 May 1608, from Dover throughout Europe. Before his next journey on 20 October 1613, to the East via Constantinople, he hung the shoes in which he had walked home from Venice in the Odcombe parish church in Somersetshire where his father had served as rector, and there they remained until at least the start of the eighteenth century.⁶ This, and his action in memorializing it, demonstrates the power of things to stand for biography.

Coryat is one example of the early modern traveler. In the Renaissance, travelers were expected to improve their learning in antiquity and modern politics, as well as to bring to friends and countrymen valuable political, mercantile, and industrial information; thus, Coryat justifies his narrative as a prompt to elite youth to polish themselves for Prince Henry’s court. He explains in his Dedicatory Epistle to the Prince of Wales, in whose household he had been admitted,

some little encouragement to many noble and generose young Gallants that follow your Highnesse Court, and giue your attendance vpon your Peerlesse person, to trauell into forraine countries, and inrich themselues partly with the

³ Paula Findlen, “Inventing Nature: Commerce, Art, and Science in the Early Modern Cabinet or Curiosities,” in Pamela H. Smith and Paula Findlen (eds), *Merchants and Marvels: Commerce, Science, and Art in Early Modern Europe* (Routledge: New York and London, 2002), pp. 297–320 *passim*. See also Barbara M. Benedict, *Curiosity: A Cultural History of Early Modern Inquiry* (Chicago: University of Chicago Press, 2001), pp. 71–117.

⁴ Claire Preston, “The jocund cabinet and the melancholy museum in seventeenth-century English literature,” in R.J.W. Evans and Alexander Marr (eds), *Curiosity and Wonder from the Renaissance to the Enlightenment* (Burlington, VT: Ashgate, 2006), p. 88.

⁵ Identity has shifted linguistically from meaning “sameness” to designating individual subjectivity, differentiated and distinguished from the selfhood of others; see Colin Kidd, “Identity before Identities: Ethnicity, Nationalism, and the Historian,” in Julie Rudolph (ed.), *History and Nation* (Lewisburg, PA: Bucknell University Press, 2006), pp. 9–44, esp. pp. 20–26.

⁶ “Introduction,” to *Coryat’s Crudities*, 2 vols (Glasgow: James MacLehose and Sons, 1905), vol. 1, pp. ix–x.

obseruations, and partly with the languages of outlandish regions, the principall meanes (in my poore opinion) to grace and adorne those courtly Gentlemen, whose noble parentage, ingenuous education, and vertuous conversation have made worthy to be admitted into your Highnesse Court: seeing thereby they will be made fit to doe your Highnesse and their Country the better seruice when opportunity shall require. For the description of many beautifull Cities, magnificent Palaces, and other memorable matters that I have obserued in my trauels, may infuse (I hope) a desire in them to trauel into transmarine nations, and to garnish their vnderstanding with the experience of other countries.⁷

Coryat expresses the prevalent philosophy that, in order to finish themselves for service at court, courtiers ought to seek spectacles of national history, progress (or regress), and wealth.

Monuments, fortifications, battlefields, churches, castles, palaces, shipping, roads, bridges, city planning, signs of commerce, and, especially in the later eighteenth century, spectacles of extraordinary scenery, including mountains, lakes, and forests, furnished knowledge and experience in observation and analysis. So, too, did curiosity cabinets. Both the avid travelers John Ray and Philip Skippon, for example, made a point of visiting the Grand Duke of Tuscany's curiosity cabinet in 1664.⁸ All such experiences constituted knowledge, a knowledge collected by the traveler to be deployed as he honed himself into a courtier.

Such imaginative engagement was also supplied by travel literature. Travelogues had long supplied home-bound readers with the vicarious experience of travel, but they also served as spiritual autobiographies that documented the traveler's acquisition of experience. John Ray's compendious *Collection of Curious Travels & Voyages* (1693), dedicated to the Royal Society, for example, includes a treatise on plants, various accounts of voyages to the east, and excerpts from Oldenburg's *Philosophical Transactions*, all designed to please and instruct the reader and to enlarge "the Empire of Knowledge." The traditional accounts of travel are further supplemented by "three Catalogues at the end, containing the Trees, Shrubs, and Herbs growing in the *Levant* part of the World, together with their various synonymous Names, which do much illustrate and beautify the whole," solicited from John Ray.⁹ Collection and classification of things thus become part of the scientific and emotional experiences of travel and of reading

⁷ Thomas Coryat, "To the High and Mighty Prince Henry, Prince of Wales," in *Coryat's Crudities* (London: Printed by W.S., 1611), pp. 2–3 (the dedication is unpaginated). All quotations from Coryat are to this edition and are hereafter cited parenthetically.

⁸ John Ray's *Observations: Topographical, Moral and Physiological; Made in a Journey Through part of the Low-Countries, Germany, Italy and France* (London, 1673), p. 237; Philip Skippon, *A Journey Made Thro' Part of the Low-Countries, Germany, Italy and France*, in Awnsham Churchill and John Churchill (ed.), *A Collection of Voyages and Travels* (London, 1752), vol. 6, p. 565; both also noted in Findlen, "Inventing Nature," p. 300.

⁹ "The Booksellers to the Reader," in John Ray (ed.), *A Collection of Curious Travels & Voyages* (London: for S. Smith and B. Walford, 1693), Preface.

about travel. As virtual travelers, readers imaginatively collected the knowledge provided by the scientific witnessing of nature and culture.

John Ray documents other collecting experiences as part of the growth of his own scientific sensibility. In his volume of voyages, he includes Dr. Leonhart Rauwolff's *Dedicatory Epistle to His Honour'd Cousins*, in which Rauwolff recounts his early journeys and observations. "I gathered several hundreds of Simples, and kept them by me as a Treasure."¹⁰ When Rauwolff learns of better plants in the East, he writes, "I was enflamed with a vehement desire to search out, and view such *Plants* growing spontaneously in their Native places, and propounded also to my self to observe the Life, Conservation, Customs, Manners and Religion of the Inhabitants of those Countries." Of his journey, Rauwolff observes:

What I saw, learned, and experience'd, during the space of Three years ... not without great danger and trouble, I consigned all in good order, as it occurred daily, in a Pocket-Journal, to keep as a Memorial of my Life [Upon being besought by friends to publish it] I looked my Itinerary over again, and whatever Curiosities I had observed, I did transcribe into a peculiar Diary, which I ... committed it to the Press It is not Vain-glory that hath prompted me to do this, but rather the Profit and Pleasure it may afford the Reader; that those who have no opportunity to visit foreign Countries, may have it before their Eyes, as a Map, to contemplate; and that others may be excited further to enquire into these things, and induced, by reading this Account, to Travel themselves into those parts whereof I have written, to observe that more narrowly and exactly wherein I have been too short. (unnumbered pages [8–9])

Rauwolff exemplifies here the developing habit of chronicling the encounter with collectibles and curiosities as a means of documenting personal "experience," the knowledge of material culture partners the development of the self. Ray's tomes sketch the emerging rationale for travel and collecting as a simultaneously national and individual enterprise of the acquisition of knowledge.

In his "Epistle to the Reader," Coryat, too, extols the visual delights that travel affords, particularly in stimulating the imagination:

Of all the pleasures in the world trauell is (in my opinion) the sweetest and most delightfull. For what can be more pleasant than to see passing variety of beautifull Cities, Kings and Princes Courts, gorgeous Palaces, impregnable Castles and Fortresses, Towers piercing in a manner vp to the cloudes, fertill [territories] replenished with a very *Cornucopia* of al manner of commodities as it were with the horne of *Amalthea*, tending both to pleasure and profit, that the heart of man can wish for. (pages unnumbered [2–3])¹¹

¹⁰ Leonhart Rauwolff, "Epistle Dedicatory" to *Dr. Leonhart Rauwolff to his Honour'd Cousins*, in vol. 1 of John Ray (ed.), *A Collection of Curious Travels and Voyages*, 2 vols (London: S. Smith and B. Walford, 1693), note the pages in this dedication are unnumbered.

¹¹ Coryat's "Epistle to the Reader" is also unpaginated.

While past and present, aesthetic and commercial success blend in the spectacle of culture, spreading before him like a tapestry, Coryat also stresses the imaginative delights opened by actually seeing scenes and objects previously known only in books. In his “Epistle to the Reader,” he observes that the battle sights noted by Roman authors, “when they suruayed by a curious traueller, doe seeme to present to the eyes of his minde a certaine Idea of the bloudy skirmishes themselues” (pages unnumbered [4]). Travel thus develops the imaginative knowledge of history.

However, if the Renaissance traveler sought social skills, religious ecstasy, antiquarian information, and personal excitement, Coryat demonstrates that they also sought something else: loot. This was not the loot of traders or pirates, nor was it solely the curiosities that were increasingly commercially profitable. Rather, it was the material evidence of his own travels that expressed his particular sense of penetrating the history of world culture—epitaphs.

It hath been oftentimes objected vnto me since my coming home by certain Gentlemen of eminent note, and as it were laid in my dish as a choaking peare, that for the short time that I was abroade I obserued more solid matters then any English man did in the like space this long time. For I copied out more inscriptions and epitaphes (said a certain Knight that shall passe nameless) that are written upon solid peeces of stone, then any iudicious traveller would have done in many yeares. For which cause he branded me with the note of a tombe-stone traueller. Whereas it hath been much more laudable (said he) to have obserued the gouernment of commonweales, and affaers of state. I answere[d] him, that because I am a priuate man and no statist, matters of policie are impertinent unto me Besides I have obserued that in some places it is dangerous to prie very curiously into State matters, as diuers trauellers have obserued by their deare experience. (pages unnumbered [7–8])

By collecting material evidence of his experiences, Coryat seems laughably crude, but his behavior demonstrates the interconnections between materiality, language, history, memory, and identity. His collection embodies his knowledge.

The *Crudities* is prefaced by a large number of panegyric verses by contemporary wits, and Ben Jonson supplied two sets of comic, rhyming two-line mottos immediately following the title page. Coryat, then, not only collected culture, he created it, and it created him for his collection of travels, epigraphs, and inscriptions translated into public print form his identity. Indeed, furnished with an index and stuffed with descriptions of rare sights, his text becomes a form of printed museum itself—subject to the same skeptical reaction that traditionally greets travelers’s tales—as well as a means to confront museum objects.¹² Albeit a “private” man, Coryat has become a public collector by virtue of his written collection.

¹² See Percy Adams, *Travelers and Travel Liars, 1600–1800* (Berkeley and Los Angeles: University of California Press, 1962).

Exhibition Practices and Seeing the Spiritual Self

Coryat's personality as a collection of the experiences of travel echoes another and significant context that organized the way in which owners presented and spectators found "knowledge" in museums and curiosity cabinets: pilgrimages and traveling spectacles in fairs and exhibitions. These ancient practices intensified in the Medieval period as the Church grew dominant, but the practices of collecting, displaying, and discussing objects start far earlier than the eighteenth century. They may start as early, indeed, as tourism itself, perhaps in the Roman Empire when victors and private collectors, obsessed by Greek antiques, displayed trophies of war and travel and when travelers' tales and written collections, such as Ovid's *Metamorphoses* and epitaph anthologies, for example, found willing audiences.¹³ However, the wide popularity of collections of things to be seen certainly peaked during the early modern period.

The way things were collected and displayed was shaped initially by three kinds of collections: the repositories in Churches; traveling fairs and exhibits; and the galleries and cabinets of Renaissance princes. Churches had traditionally held small collections of relics and religious instruments, immured in reliquaries or separate chambers. Sometimes they held special festivals to exhibit previously unseen and precious items. These reserved occasions and spaces, and their revered contents, were designed to dramatize both the institution's cultural power and the holy reality of the unseen. Broadside advertisements and awestruck visitors' tales about them spread the Church's fame. Often the relics themselves were given fantastical histories from the Bible. This fame faded, however, as the Renaissance critique of Medieval mysticism advanced. Susan M. Pearce correlates the rise in the passion for collecting with the contemporaneous decline of religious narratives and physical depositories of relics.¹⁴ Nonetheless, the association of collected things with a materialization of the spiritual—and empirical proof of the marvelous—persists in early museums, whose organization and display seeks to evoke from audiences a sense of wonder beyond rationality.

The relationship between religion and materialism in the period, particularly the religious significance of objects, became increasingly complicated for early modern people as British culture embraced the "New Science" and veered into the secularism that marked the eighteenth century. Since the Reformation, the use of things as relics that embodied a spiritual power beyond human mediation had connoted a Catholic practice of worship, widely derided in Protestant countries as Papist superstition; yet the magical properties of physical nature mesmerized "scientists" as well as the devout. Things were seen to contain agency and manifest

¹³ Arthur MacGregor, *Curiosity and Enlightenment: Collectors and Collections from the Sixteenth to the Nineteenth Century* (New Haven and London: Yale University Press, 2007), pp. 2–4.

¹⁴ Susan M. Pearce, *Museums, Objects, and Collections: A Cultural Study* (Leicester and London: Leicester University Press, 1991), p. 92.

strangeness; they might act out God's will or "counterfeit" it, "usurping the place of the real" as the idol replaces God. Lorraine Daston has noticed that "miracles were almost always working in things, be it the body of a cripple suddenly made whole or the water turned into wine," yet things also possess an "odor of fraud and folly." Indeed, she adds, "in the Judeo-Christian tradition ... [the] very word "idol" became a metaphor for epistemological error, as in Francis Bacon's idols of the cave, tribe, marketplace, and theatre On the other hand, there is also *res ipse loquitur*, the thing speaks for itself."¹⁵

The ambiguity of materiality intensified in the seventeenth century because seeing itself did not traditionally carry the authority the new "scientists" claimed for it. In religious thought, physical appearances deluded or deceived the devout since God's true reality, as Platonic philosophy maintained, lay beyond the material world. Furthermore, before, or even as, Newtonian optics emphasized empiricism, painterly experimentations with perspective were undermining the reliability of visual experience. Ernest B. Gilman explains that:

art treatises from Alberti to the seventeenth century ... show that linear perspective, which begins in the earlier Renaissance as an expression of confidence in the certainty of human knowledge, gradually comes to reflect a more complex and ambiguous relationship between the knower and the knowable Since mirrors in the seventeenth century were preeminently witty, associated both with anamorphic "perspectives" and with telescopic "perspective glasses," poets could find a model for Pauline vision [ie through a glass darkly] in the curious perspective.¹⁶

The artistic play with perspective finds an analogy in the representation and reception of things in museums.

In addition, all kinds of spectacles, like the Monstrous Crows (a pair of Italian children with large goiters), the mad people in Bedlam, or the strange people on display at fairs, also served to test people's belief in or understanding of what they saw. Many such spectacles were not human or even animal, but rather vegetable, mineral, or man-made objects that resembled humans in some fashion. While automata had long been seen as man's imitation of God's creation, objects that manifested animal or spiritual qualities were more ambiguous still because their identities were entirely a matter of empirical categorization. Hence, they became staple fare in fairs and circuses and opportunities in advertisements and broadsides for satirizing religious, scientific, or social perceptions. Many, however, remained ambiguously meaningful or even meaningless. The touring "Elm-Board," which emitted "*Grones and Trembling*" when struck with a hot iron, for example, which seemed to defeat standard categories of animate and inanimate beings, could

¹⁵ Lorraine Daston, "Introduction," *Things that Talk: Object Lessons from Art and Science* (New York: Zone Books, 2004) pp. 12–13.

¹⁶ Ernest B. Gilman, *The Curious Perspective: Literacy and Pictorial Wit in the Seventeenth Century* (New Haven and London: Yale University Press, 1978), pp. 14–15.

merely puzzle observers by its unintelligible warning.¹⁷ Particularly from the Renaissance, the exhibition of such marvels engaged spectators in calculations about the limits of science, religion, and nature and provided social occasions for them to test their belief in the power of God to subvert forms and the power of nature to remake itself. Like earlier religious relics and fairs, both in museums and print, such spectacles were designed and displayed *theatrically* as a dramatization of divine power.

The spiritual and material ambiguity of objects, particularly in collections, also affects the way they represent history. As Susan Stewart observes, “the collection replaces history with *classification* In the collection, time is not something to be restored to an origin; rather, all time is made simultaneous or synchronous within the collector’s world.”¹⁸ As symbolic phenomena, things escape human conditions of mortality, standing eternally for divine truths, yet they also operate as factors, often made of fashioned natural materials, within human life. Collected things that hold symbolic meanings beyond both human time and their material significance could thus work simultaneously to represent eternal truths and to document individual experience.¹⁹ For example, Arthur MacGregor observes that ostrich eggs, a staple of collections, appeared in churches (as symbols of faithfulness) and in private homes and rarities, while whale bones automatically became symbols, or even parts, of Jonah’s trial in all sorts of collections.²⁰ Although things could inhabit both mystical and literal spheres of meaning at the same time, this paradoxical dynamic became increasingly suspect as empiricism encroached on the traditional, religious understanding of materiality. The collection became a prime theater for the testing of these two ways of understanding an object’s significance.

Even Coryat himself early on registers the increasing skepticism with which exotic things that supposedly contained spiritual meanings were met. In his description of the Monastery of the Benedictine Monks, which held a fledgling museum, he follows his account of the place and its rituals by recounting:

Also I saw two goodly faire rooms within the Monastery In the first of these roomes I saw the skin of a great crocodile hanged vp at the roofe This crocodile is a beast of a most terrible shape fashioned something like a Dragon, with wonderfull hard scales vpon his backe. I obserued that he hath no tongue at all; his eyes are very little, and his teeth long and sharp. Also I noted the nayles of his feet to be of a great length he liueth partly in the water, and partly in the land. For which cause the Grecians call him δυφιβιον that is, a beast that liueth vpon both these elements; and hee liueth for the most part in Nilus that famous riuier of Egypt, the Egyptians in former times being so superstitious that they

¹⁷ “Collection of Advertisements,” No. L.R. 404.a.4 (British Library, n.d.).

¹⁸ Susan Stewart, *On Longing* (Baltimore and London: Johns Hopkins University Press, 1984), p. 151.

¹⁹ Roger Chartier, *The Cultural Origins of the French Revolution*, trans. L.G. Cochrane (Durham and London: Duke University Press, 1999), pp. 128–9.

²⁰ MacGregor, *Curiosity and Enlightenment*, p. 5.

worshipped him for a god, especially those people of Egypt that were called Ombitæ, who consecrated certaine dayes to the honour of him as the Grecians did their Olympia to *Jupiter*; and if it happened that their children were at any time violently taken away by him, their parents would rejoice, thinking that they pleased the God in breeding that which served for his foode. I will also declare the etymologie of his name, because it doth excellently expresse his nature: hee is called crocodilis. (147–8)

Coryat explains the Greek word as “fear of saffron” and claims ancient Egyptians smeared their bee hives with saffron to frighten off crocodiles (148). Listed under the heading “A Crocodile described” in his Index, and immediately followed by “The Crosses of France,” Coryat’s understanding of his creature, which became the quintessential emblem of the virtuoso’s curiosity cabinet, begins with a physical description, but proceeds to blend historical, zoological, and cultural information. The Index’s random juxtapositions, the mingle of anecdote, description, and explanation, and the empirical focus all anticipate the early museum.

Despite the magical notion of things, however, the most prominent collections were not church repositories, not traveling exhibits, nor advertisements, but rather the secular hoards of natural, cultural, and artistic objects accumulated by European princes. Some, like the *stanzino* of Francesco de Medici (1541–1587) within the Palazzo Vecchio in Florence, were very private, with most of the contents secreted in cabinets. Others, like the gigantic, dazzlingly light, two-story *Kunstkammer* of Albrecht V of Bavaria (1528–1579), were public displays.²¹ European nobles and royalty collected art objects, such as books and manuscripts, clocks, telescopes, fine furniture and jewels, coins, medals, musical instruments, and galleries of paintings—a practice famously imitated by Charles I and parodied by his son’s amorous collection of “Court Beauties” painted by Peter Lely. Many of these art objects were made by famous artists, particularly paintings, which had frequently been commissioned. Whereas early *Schatzkammern*, or treasure-houses, contained things that were valuable monetarily, the rising fascination with antiquity and nature as the Renaissance progressed changed the character of what was valued and thus collected. These later *wunderkammern* contained more *Naturalia*, including natural marvels and, increasingly, cultural treasure from overseas, like crocodiles, mummies, shells, exotic rocks, unicorn horns, and pottery. Such things were tangible testaments to a prince’s power and his humanistic and enlightened view of the world; in other words, they exhibited his labor to collect.

In a parallel fashion, the natural items in amateur collections show the collector’s personal or idiosyncratic taste. Selected for their perceived rarity, they exhibit the owner’s power to make beauty. At the same time, these objects and collections also dramatize the desire of the collector to proclaim the value of his things to society, to make his taste public. They speak to the world for him, of him, and in his place; he has given over to them the public function of defining value and declaring identity.

²¹ MacGregor, *Curiosity and Enlightenment*, pp. 13–15.

Sloane, Salter, and Collecting Identity

Established in 1660, the Royal Society for the Improving of Natural Knowledge, Britain's first national scientific academy, made collecting scientific knowledge a nationalistic practice of realizing identity, and its members were Britain's first real collectors. They differed from earlier travelers and collectors in several aspects of which the following are but a few: they collected knowledge not for the sake of advancing the nation's political advantage, nor for personal enrichment, or for the acquisition of strategic skills to advance their own careers at court—all reasons that had motivated Renaissance travelers. Nor did they view travel as a pilgrimage or primarily for the purpose of worshipping God through his creations, although many, particularly Robert Hooke, reiterated this motive from Francis Bacon's justification for science in *The Advancement of Learning*.²²

Rather, as Thomas Sprat earnestly declared in *The History of the Royal-Society* (1667), they traveled as they practiced science: for the good of mankind.²³ Science, Spratt averred, soars above policies because it liberates humanity; it is “an *Enterprize* equal to the most renoun'd Actions of the best *Princes*. For, to increase the Powers of all mankind, and to free them from the Bondage of Errors, is greater Glory than to enlarge the *Empire*, or to put Chains on the necks on Conquer'd *Nations*” (pages unnumbered [1–2]). Rather than seeking personal or national advantage, the members of the Royal Society conducted science and collected objects as literal embodiments of knowledge: for the sake of the object as truth itself.

This ideal stamps a fresh element on the way early visitors and collectors understood museums and it makes the museum a peculiarly fraught theater for the testing of identity. This is because, despite the revolutionary claims of the New Science, early traditional practices of travel and collection persistently color those of early modern collectors and spectators of collections. Such traditions encompass religious pilgrimage, political spying, mercantile profit-seeking, and individual education. As the New Science became common practice, moreover, museums also became opportunities of visitors to bruit their fashionable information about recent discoveries in science and history. This peculiar mix of reasons and ways to see objects (as a practice of disinterested knowledge-seeking, as a humanistic exercise that became increasingly nationalistic once empiricism defined Britishness, and as a chance to show off) characterizes the experiences of collecting and looking at collections. Indeed, the strains between these traditions and the modern ideals of early scientists forge the ambiguity and ambivalence

²² Francis Bacon, *The Advancement of Learning*, ed. Michael Keirnan (Oxford: Clarendon, 2000), Book I, pp. 8–9.

²³ Thomas Sprat, *The History of the Royal-Society London, For the Improving of Natural Knowledge* (London: Printed by T.R. [i.e., Thomas Roycroft] for J. Martyn at the Bell without Temple-bar, and J. Allestry at the Rose and Crown in Duck-lane, Printers to the Royal Society, 1667), dedication.

that marks the creation and reception of early museums, as being collections of magical relics, natural wonders, and scientific loot.

The catalog of the Tradescant museum in South Lambeth illustrates the combination of ways in which seeing collections dramatized identity. The *Musaeum Tradescantianum* constituted an enormous collection of rare plants and other curiosities gathered by the famous seventeenth-century gardener, sometime employee of Sir Robert Cecil and the Duke of Buckingham, himself a veteran traveler.²⁴ In “To the Ingenious Reader,” his son John Tradescant justifies his endeavor to memorialize this collection as both an honor to his father and a gift to the nation because “the enumeration of these Rarities, (being more for variety than any one place known in Europe could afford) would be an honour to our Nation and a benefit to such ingenious persons as would become further enquirers into the various modes of Natures admirable works, and the curious Imitators thereof” (unnumbered pages [2–3]). This rationale links Tradescant’s personal identity as his father’s son with that of the nation, where both are characterized by their scientific ingenuity. In addition, since Tradescant provides both English and Latin names for the plants, he evidently expects the museum’s visitors to possess varying degrees of education and to entertain disparate motives.

The most important collection of strange things without doubt was Sir Hans Sloane’s cabinet of curiosities. As a young physician, Sloane traveled to the Caribbean and spent 15 months in Jamaica, bringing with him on his return on 29 May 1689 no less than 800 species of plants. He added to this hoard throughout his life, even acquiring the entire national history museum of the mysterious William Courten, worth some £50,000. Sloane was first the Secretary of the Royal Society (1693–1712) and, upon Sir Isaac Newton’s death, its President (1727–1741). In 1749, Sloane left to the nation his collection, valued at £50,000, (although he believed it worth much more), with the proviso that Britain raise £20,000 for his family. It took an Act of Parliament in 1753 to accept the gift and appoint trustees. That year it opened, admitting visitors for a few pennies each. Thus Sloane’s activities made his collection a national treasure and collecting itself a national activity.

Sloane epitomized the collector. His collecting was imperialistic, acquisitive, and limitless. Moreover, by making his swollen collection a national institution, he forged the link between collecting and British empiricism, exploration, and acquisition. Sloane created a role for tourists and travelers from all classes. While holidays away from home had been popular since the seventeenth century, Sloane’s practice made traversing the natural world even in cities and the local countryside an experience of acquisition.²⁵ Both the humbleness of much of his collection

²⁴ John Tradescant, *Musaeum Tradescantianum: Or, Collection of Rarities Preserved at South-Lambeth neer London* (London: Printed by John Grismond, sold by Nathanael Brooke, 1661), Preface “To the Ingenious Reader.”

²⁵ Marjorie and C.H.B. Quennell, *A History of Everyday Things in England*, vol 2: 1500–1799, 4 vols, 5th edn (London: B.T. Batsford, 1950), p. 197; Celia Fiennes, *Through*

of shells, rocks, and plants and its astounding volume worked to represent the globe as stuffed with collectibles. When it became a public museum, his collection included “fifty thousand books and manuscripts, twenty-three thousand coins and medals, eight thousand one hundred and eighty-six quadrupeds and their parts, five thousand eight hundred and forty-five shells, etc., five thousand four hundred and thirty-nine insects, seven hundred and fifty-six anatomical preparations of human bodies, parts of mummies, etc.,” and thousands of other items.²⁶ He demonstrated that things were everywhere and need not even be whole; broken, or torn into bits, one thing became many, like the hydra’s heads. In their multiplicity, these things had an authority that cancelled their individual mediocrity. Still more significantly, by treating natural and cultural items equivalently, Sloane and other collectors made the two categories seem identical: the *cultural* artifacts of other nations became equal to their *natural* products: their nuts, minerals, and animals. All were for acquisition and British use.²⁷ Collecting foreign items, cultural and natural, and arranging them for spectatorial analysis and pleasure became the mode of British enterprise. Likewise, seeing them became a participatory act of national identity. Acquisitive empiricism was British practice.

Sloane also models the eighteenth-century way of organizing and narrating the collecting process and the loot collected. In catalogs compiled for over 50 years (between 1685 and the 1740s), he included dates of acquisition, prices, vendors, donors, provenance, and sometimes a “gossipy” detail or other circumstantial information.²⁸ His order reflects the “traditional” principles of Renaissance epistemology: “reason, experience, and authority,” or, in other words, the social contexts not of the items, but of the collecting of them, in the past and present.²⁹ Sloane thus jumbles classes of items, such as ethnographical objects; natural and artificial curiosities, like breeches singed by thunder and a bullet that killed a man

England on a Side Saddle in the Time of William and Mary (London: Field and Tuer, The Leadenhall Press E.C.; Simpkin, Marshall and Co.; Hamilton, Adams and Co; New York: Scribner and Welford, 1888), Preface.

²⁶ Ronald Blunt, *In Cheyne Walk and Thereabout. Containing Short Accounts of Some Ingenious People and Famous Places that were by the Riverside at Chelsea* (London: Mills and Boon, Ltd., 1914), p. 258.

²⁷ Linda Colley, *Britons: Forging the Nation, 1707–1837* (New Haven, CT: Yale University Press, 1992).

²⁸ Neil Kenny, *The Palace of Secrets: Beroalde de Verville and Renaissance Conceptions of Knowledge* (Oxford: Clarendon Press, 1991), p. 244.

²⁹ Michael Day, “Humana: anatomical, pathological and curious human specimens in Sloane’s museum,” in Arthur MacGregor (ed.), *Sir Hans Sloane: Collector, Scientist, Antiquary, Founding Father of the British Museum* (for the Trustees of the British Museum: British Museum Press in association with Alistair McAlpine, 1994), pp. 67–9. J.C.H. King, “Ethnographic Collections: Collecting in the Context of Sloane’s Catalogue of ‘Miscellanies,’” in Arthur MacGregor (ed.), *Sir Hans Sloane: Collector, Scientist, Antiquary, Founding Father of the British Museum* (for the Trustees of the British Museum: British Museum Press in association with Alistair McAlpine, 1994), p. 229.

by passing through a door; objects of virtue, including both personal and historical relics; and rosaries and crucifixes, raw materials, and experimental results.³⁰ Sloane's organization thus records and mirrors his own experience of the items by the order in which he himself acquired them (the collector's context), rather than any order based on their composition, date of manufacture, geographical provenance, or other principle of classification. Although Sloane typically exhibits a taxonomic rather than an anthropological understanding of things, his catalog also reveals that his things are understood through the collector's context. The collector makes their meaning.

Sloane's chatty approach, however, was not the official principle of scientific description. In *Musæum Regalis Societatis. Or A Catalogue & Description of the Natural and Artificial Rarities Belonging to the Royal Society*, Nehemiah Grew (1641–1712), physician and Fellow of the Royal Society, provides a careful explanation of how and why catalogs include certain kinds of information.³¹ Since Grew understood plants and animals to stem from the same divine source, he understood their structures as analogous. In his catalog's Preface, he explains that he organizes the contents, "according to the degrees of their Approximation, to Humane Shape, and one to another" (1), and he specifies the importance of clear, detailed verbal descriptions in order to differentiate between "the several Kinds and Species, in so great a Variety of Things known in the World" (1).

Grew then shows that the "right" way to see objects is to describe them by their relationship or proximity to mankind. He adds that this "Inventory of Nature" will eradicate the "fruitless and endless Disquisitions and Contests" that have plagued readers and even introduce ideas "relating to the Nature and Use of Things ... to the Authors mind, which otherwise he would never have thought of. And may give occasion to his Readers, for the consideration of many more" (2). Furthermore, all nature should be described.

And therefore it were also very proper, That not only Things strange and rare, but the most known and common amongst us, were thus describ'd. Not merely, for that what is common in one Countrey, is rare in another: but because, likewise, it would yield a great abundance of matter for any Man's Reason to work upon. He that notes, That a Grey hound hath pricked Ears, but that those of a Hound hang down; may also the Reason of both; for that the former *hunts* with his *Ears*; the latter, only with his *Nose* ... After the Descriptions; instead of meddling with the Mystick, Mythologick, or Hieroglyphick matters; or relating Stories of Men who were great Riders, or Women that were bold and feared not Horses; as some other have done: I thought it much more proper, To remarque some of the Uses and Reasons of Things I have made the Quotations, not to prove things well

³⁰ King, "Ethnographic Collections," pp. 228–44, esp. p. 230.

³¹ Nehemiah Grew, M.D., *Musæum Regalis Societatis. Or, a Catalogue & Description of the Natural and Artificial Rarities Belonging to the Royal Society* (London: by W. Rawlins, for the Author, 1681). All quotations for Grew refer to the preface of his text, which is not paginated. Grew's text will be cited hereafter parenthetically.

known, to be true [as does Aldrovandus] who very formally quotes *Aristotle*, to prove a Sheep to be amongst the *Biscula* ... as if *Aristotle*, must be brought to prove a Man hath ten Toes. (2–3)

When Grew rejects the Renaissance notion of such “authorities” as Aristotle in favor of observed discriminations between kinds of things, he articulates the passionately thing-centered practice of early Restoration collectors. For them, objects represent an almost divine, absolute truth apart from the mess of social interactions.

These two functions of establishing classes of objects in a hierarchy and using collecting to define a self are exemplified by the virtuoso Ralph Thoresby. The son of a prosperous parliamentarian wool and cloth merchant and himself a collector, Thoresby, like Coryat, copied epitaphs and inscriptions with which he supplemented his father’s nucleus of a museum, established when he purchased a hoard of coins and medals for £185 from the estate of his old general, Lord Fairfax.³² By 1692, his museum had become a famous local attraction and he himself a respected contributor to the enterprises of John Ray, Obadiah Walker, Bishop Nicholson, and Hearne.³³ Significantly, his identity as a collector was dictated by his father. In a letter, he counseled the young Thoresby to “take a little journal of any thing remarkable every day, principally as to yourself, as, suppose, Aug. 2. I was at such a place; (or) I omitted such a duty” (xv). While such exercises in self-examination constituted Puritan spiritual practice, they also shade into a way of collecting and memorializing experience that extends beyond self-contemplation to external objects. Indeed, increasingly Thoresby’s *Diary* records a combination of physical, social, and intellectual experiences. For example,

27. Morning, to visit Mr. Book, who let have me some autographs, with whom I also met with Mr. Whitaker ... afternoon, at the Royal Society, but ... stayed little, going with my friend Mr. Chamberlayn, to the other society, (for Promoting Christian Knowledge) Sir Isaac Newton and Robert Nelson, Esq. filling the chairs; there were greater numbers of learned and pious men at both places, than I have often seen at the weekly meetings of either society. 28. Visited Ms. Fenton and son, Mr. Faire, an ingenious artist, who presented me with three artificial gems, and emerald, sapphire, and amethyst, of his own invention, and also a box of his admirable Anti-scorbutic Elixir, which is famous, having done much good. (2:216–17)

In Thoresby’s account, people and things are inextricably mixed, and experiences and objects are collected with equal interest.

³² *Oxford Dictionary of National Biography*, 1898. Ralph Thoresby, *The Diary of Ralph Thoresby*, F.R.S., ed. Rev. Joseph Hunter, F.S.A., 2 vols (London: Henry Bolburn and Richard Bently, 1830), vol. 1, “Preface,” pp. iii–iv. Quotations from Thoresby’s text are hereafter cited parenthetically.

³³ Hunter, Preface to Thoresby *Diary*, vol. 1, pp. vi and xi.

If his *Diary* records Thoresby's accumulation of things and friends, his huge museum catalog of over 500 folio pages, *Musæum Thoresbyanum*, shows how museums became theaters of identity.³⁴ Separately printed, but published in 1715 with *Ducatus Leodiensis*, an impressively detailed topographical account of York's West-Riding, its organization and information show exactly how things were seen and valued in the period and how both collecting and viewing collections became social practice. The catalog opens with coins, which are historically arranged, medals, and then "Artificial and Natural Rarities," reaching from "Humane" curiosities, quadrupeds, and minerals lodged in animals, like the "Balls or Stones *taken out of Animals*," to serpents, birds, eggs, fishes, shell, insects, plants, stones, coral, fossils, metals, minerals, and earths.³⁵ Thoresby includes in *Musæum Thoresbyanum* the provenance of almost every curiosity, such as, "[A] Paper stain'd to a perfect Claret Colour, by the Urine of Capt. *Croft of Leedes*" (430). In documenting how Thoresby acquired each item, the donor list shows that early private museums were intensely collaborative enterprises in which a curious brotherhood, extending to travelers as well as antiquaries, consolidated their vision of the value and meaning of the things they had brought together. Moreover, in the final section (the least important), the catalog of "artificial Curiosities," Thoresby explains not only the meaning of the object for its original owners, but its contemporary significance. In describing a tomahawk, for example, Thoresby's catalog notes:

Upon one side is drawn an odd Figure supposed to represent one of their Idols whose Assistance they implore; upon the Bowling at the end is a Lizard nine Inches long, cutout of the same piece of wood, artificially enough [that is, skillfully], considering its being wrought with Flints by the Native *Indians*. One of the four *Indian Kings*, lately at *London*, is drawn with such an one in his Hand. This was brought me from *Carolina* by *Chr. Gale Esq; Attorney-General for her Majesty*. (472)

The things collected in Thoresby's museum and his catalog embody a knowledge both representative and specific.

These elite museum practices were copied in public museums and exemplified by London's very first, Don Saltero's Cabinet of Curiosities.³⁶ This museum

³⁴ Thoresby, *Musæum Thoresbyanum: Or, a Catalogue of the Antiquities, and of the Natural and Artificial Rarities, Preserved in the Repository of Ralph Thoresby, Gent. F.R.S. at Leeds in Yorkshire, A.D. 1712* (London: for Maurice Atkins, 1713), cited parenthetically hereafter.

³⁵ Ralph Thoresby, *Ducatus Leodiensis: or the Topography Of the Ancient and Populous Town and Parish of Leedes* (London: Printed for Maurice Atkins, by Henry Clements, 1740); Thoresby, *Musæum Thoresbyanum*, pp. 275–567; 429–500; 470–71; 429–500.

³⁶ See Barbara M. Benedict, "Saying Things: Collecting Conflicts in Eighteenth Century Object Literatures," *Blackwell's Literature Compass*, vol. 3 (2006): pp. 599–719.

exemplifies the social and literary significance of objects as enactments of the clash between history and fable. Established in a coffee house in 1690 by James Salter, Sir Hans Sloane's ex-barber and sometime servant, it was furnished initially with duplicate items donated by Sloane.³⁷ It attracted an audience of pleasure-seekers, tourists, and amateur collectors. By 1741, Salter listed some 120 people and 420 items.³⁸ Perhaps Salter's most famous item was "Pontius Pilate's Wife's Chambermaid's Sister's Hat." The ludicrously grandiloquent and extended provenance of the item uses the eighteenth-century literary technique of the mock-heroic and points to the ambiguity of the authenticity and value of those items.

The journalist and novelist Sir Richard Steele emphasized this humor. In his report on the museum in *The Tatler* in 1709, he teasingly pretends to outwit Salter by identifying an object himself:

[Saltero] shows you a straw hat which I know to be made by Madge Peskad, within three miles of Bedford; [He tells you] "It is Pontius Pilate's Wife's chamber maid's sister's hat." To my knowledge of this very hat it may be added that the covering of straw was never used among the Jews since it was demanded of them to make bricks without it. Therefore this is really nothing but, under the specious pretence of learning and antiquities, to impose upon the world.³⁹

Steele here identifies the woman who made the hat and further corrects history by citing the Bible to claim Jews did not use straw. He also exposes the credulity of *other* visitors who seek in these things material evidence of the past and of miracles. Indeed, he shows that their desire to find marvels in museums is a hopeless desire that so blinds them that they fail to recognize that straw cannot survive for centuries in open air. By parodying the literalness with which the credulous take exhibits like Don Saltero's, Steele mocks unsophisticated seeing.⁴⁰ He dramatizes the urban dilemma of how to see things: as empirical, historical, or magical; as symbolic or literal; and/or as representative or unique.

Moreover, this ambiguity also envelops antiquarian collections, for foreign clothing was a staple element of museums. Thoresby, too, includes, "A Straw Hat about two Yards and a half in Circumference These are such as George Fox the Proto-Quaker called *Skimming Dish Hats*, and bore his Testimony against them; and to confess the Truth, they are almost as Novel as his Religion, Brimes being a modern Invention since round flat Caps were disused" (484). Salter thus parodies the antiquary's insistent historicization of spiritual lore; the truth of the object hovers between its material and moral meanings.

³⁷ Richard D. Altick, *The Shows of London* (Cambridge, MA: Belknap Press, 1978), p. 17.

³⁸ James Salter, *A Catalogue of the Rarities To be seen at Don Saltero's Coffee-House in Chelsea* (London: by Tho. Edlin. 1729). The catalogue went through numerous reprintings and editions.

³⁹ Blunt, *In Cheyne Walk*, pp. 32–3.

⁴⁰ Altick, *The Shows of London*, pp. 5–7.

Conclusion: The Traveled Self

The first principle of collections is that the collector asserts that each object is valuable. This itself is impudent since Restoration and eighteenth-century collections contain objects conventionally deemed worthless. However, if collectors and spectators endorsed

each other's collections, they were valued and so became valuable. The Adams family, who established a popular museum in London in the 1730s, for example, featured items from their family, including as the first of its 567 items "The Heart of the famous *Bess Adams* that was hang'd at *Tyburn* with Lawyer *Carr*, Jan. 18, 1736–37."⁴¹

As this risible item shows, things, according to new philosophy of empiricism, contained a new authority in themselves, but one that impinged on the moral authority previously granted social perceptions.⁴² Museums and the literature of travel and collecting present things in a venue that becomes the occasion for enacting an identity founded on empirical possession. Especially as Sloane and the Royal Society made empiricism equivalent to a nascent nationalism, a city stuffed with commodities made collecting an activity of fashionable urbanity. The physical museum and the imaginative act of collecting are places where Britons exercise judgment, create value, recognize wonder, and evaluate the goods of the world. These venues make viewing objects and discoursing, ranking, and responding to them an activity of self-realization. The spectator's identity comes into being in the act of imaginatively acquiring a collection of experiences; he or she becomes part of British society in practicing empiricism and judgment, at the same time crystallizing his or her difference from others.

⁴¹ Adams, *A Catalogue of the Rarities to be seen at ADAMS's at the Royal Swan, in Kingsland Road* (London, 1761), p. 2, item 1.

⁴² In *Curiosities and Texts: The Culture of Collecting in Early Modern England*, Marjorie Swann has shown how collecting things in the seventeenth century not only shaped identity, but became a means for transforming things into texts (Philadelphia: University of Pennsylvania, 2001).

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